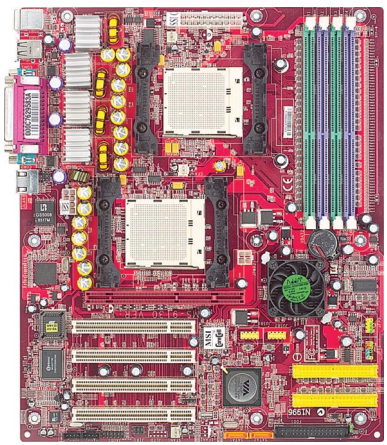
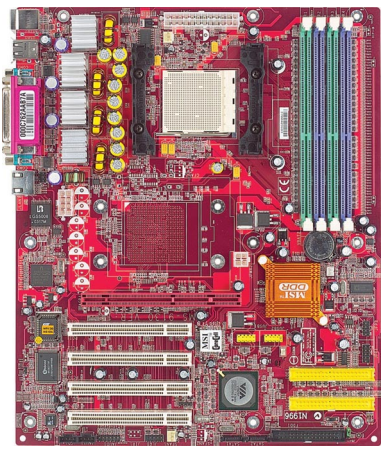
K8T Master Series

MS-9130 (v1.X) Mainboard



K8T Master2-FAR



K8T Master1-FAR

Version 1.2
G52-S9130X3

Manual Rev: 1.2
Release Date: August 2003

CE N1996

FCC-A Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Notice 1
The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2
Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

VOIR LA NOTICE D'INSTALLATION AVANT DE RACCORDER AU RESEAU.

Micro-Star International MS-9130

FC **Tested to comply with FCC Standard**

For Home or Office Use

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Revision History

Revision	Revision History	Date
V1.0	First release of K8T Master2-FAR	July 2003
V1.1	First release of K8T Master1-FAR	July 2003
V1.2	Combine the content of V1.0 & V1.1 in V1.2, & Core Center Pro updated.	August 2003

Safety Instructions

1. Always read the safety instructions carefully.
2. Keep this User's Manual for future reference.
3. Keep this equipment away from humidity.
4. Lay this equipment on a reliable flat surface before setting it up.
5. The openings on the enclosure are for air convection hence protects the equipment from overheating. **Do not cover the openings.**
6. Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
7. Place the power cord such a way that people can not step on it. Do not place anything over the power cord.
8. Always Unplug the Power Cord before inserting any add-on card or module.
9. All cautions and warnings on the equipment should be noted.
10. Never pour any liquid into the opening that could damage or cause electrical shock.
11. If any of the following situations arises, get the equipment checked by a service personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment has been exposed to moisture.
    - The equipment has not work well or you can not get it work according to User's Manual.
    - The equipment has dropped and damaged.
    - The equipment has obvious sign of breakage.
12. **Do not leave this equipment in an environment unconditioned, storage temperature above 60^0 C (140^0F), it may damage the equipment.**

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

警告使用者:
這是甲類的資訊產品，在居住的環境中使用時，可能會造成無線電干擾，在這種情況下，使用者會被要求採取某些適當的對策。

CONTENTS

FCC-A Radio Frequency Interference Statement ii
Copyright Notice iii
Revision History iii
Safety Instructions iv
Chapter 1. Getting Started 1-1
Mainboard Specifications 1-2
Mainboard Layout 1-4
MSI Special Features 1-6
Core Center 1-6
Chapter 2. Hardware Setup 2-1
Quick Components Guide 2-2
Central Processing Unit: CPU 2-3
CPU Installation Procedures for Socket 940 2-4
Installing the CPU heatsink/cooler 2-5
Memory 2-7
Installing DDR Modules 2-7
Memory Population Rules 2-8
Power Supply 2-9
SSI 8-Pin Power Connector: JPWR1 2-9
SSI 12V Power Connector: JPWR2 (Optional) 2-9
SSI 24-Pin Power Connector: JPR1 2-10
Back Panel 2-11
View of the Back Panel 2-11
Mouse Connector 2-11
Keyboard Connector 2-12
Serial Ports: COM1 & COM2 2-13
USB Ports 2-13
RJ-45 LAN Jack: Giga-bit LAN 2-13
Parallel Port 2-14

Connectors 2-15
Floppy Disk Drive Connector: FDD1 2-15
Hard Disk Connectors: IDE1 & IDE2 2-15
Fan Power Connectors: CFAN1/2, SFAN1, NBFAN1 2-16
LCD Panel Connector: JLCD1 2-16
Serial ATA/Serial ATA RAID Connectors controlled by VT8237: SATA1 & SATA2 2-17
Front Panel Connectors: JFP1 & JFP2 2-18
Front Panel Audio Connector: JAUD1 2-19
Front USB Connectors: JUSB1 & JUSB2 2-20
IrDA Infrared Module Header: JIR1 2-20
Chassis Intrusion Switch Connector: JCI1 2-20
SCSI LED Connector: J7 2-21
CD-In Connector: JCD1 2-21
Aux Line-In Connector: JAUX1 2-21
Jumpers 2-22
Clear CMOS Jumper: JBAT1 2-22
Slots 2-23
AGP (Accelerated Graphics Port) Slot 2-23
PCI (Peripheral Component Interconnect) Slots 2-23
PCI Interrupt Request Routing 2-23
Chapter 3. BIOS Setup 3-1
Entering Setup 3-3
Control Keys 3-3
Getting Help 3-3
The Main Menu 3-5
Standard CMOS Features 3-7
Advanced BIOS Features 3-9
Advanced Chipset Features 3-11
Integrated Peripherals 3-15

Power Management 3-19
PNP/PCI Configuration 3-22
PC Health 3-23
Frequency/Voltage Control 3-25
Load Fail-Safe/Optimized Defaults 3-26
Set Supervisor/User Password 3-27
Appendix. VIA VT8237 Serial ATA RAID Introduction A-1
Introduction A-2
BIOS Configuration A-4
Installing RAID Software & Drivers A-14
Using VIA RAID Tool A-17

Getting Started

Thank you for purchasing the K8T Master series (MS-9130 v1.x), an excellent ATX workstation from MSI. Based on the innovative **VIA K8T 800** and **VIA VT8237** chipsets for optimal system efficiency, the K8T Master series mainboard accommodates dual latest AMD Opteron DP™/UP™ processors in the 940-pin lidded ceramic micro PGA package, and supports up to four 144-bit DDR registered ECC DIMMs (at 200, 266, 333 and 400MHz) to provide the maximum of 8 GB memory capacity. This mainboard provides a cost-effective and professional solution for high-end workstation and server markets.

Mainboard Specifications

Target Market Segment

➤ Target in the workstation/high-end desktop user.

CPU

➤ Supports dual Socket 940 for AMD Opteron DP™/UP™ (SledgeHammer DP) processors.
➤ Supports Opteron DP™ 244 and higher.
➤ AMD x86-64 Technology.
- AMD's 64-bit, x86 instruction set extensions.
- 64-bit integer registers, 48-bit virtual address, 40-bit physical address.
- Eight new 64-bit integer registers (16 total).
- Eight new 128-bit SSE/SSE2 registers (16 total).

Chipset

➤ VIA K8T 800 Chipset (578-pin BGA)
- HyperTransport™ technology tunnel with side A (16 bits)
- Each side support transfer rates of 1600, 1200, 800, and 400 mega-transfer per second.

➤ VIA VT8237 Chipset (539-pin BGA)
- A 33 MHz/32-bit PCI 2.2 compliant bus interface supports up to 6 external devices.
- 16-bit 66MHz V-Link client Interface with total bandwidth of 1066MB/sec.
- 2 SATA ports (RAID 0 or 1 function).
- LPC bus to connect peripherals such as super I/O and BIOS.
- Extensive ACPI-compliant power management.
- IOAPCI controller.
- AC'97 2.2 soft audio controller.
- USB hosts supporting 8 ports (USB 1.1 and USB 2.0 optional)

Main Memory

➤ 144-bit DDR Register DIMM at 200/266/333/400 MHz.
➤ Supports DIMM sizes from 64 MB (128 Mb x 16 DRAMs) to 2 GB (1 Gb x 4 DRAMs), up to 8GB of memory in total.
➤ Supports interleaving memory within DIMMs.
➤ Chip Kill ECC allows continuous correction of 4-bit errors in a failed x 4 memory device.

Slots
- One AGP Pro 8x/4x slot.
- Four 32-bit/33 MHz PCI slots.

Networking
- Broadcom LAN controller.
- Provides 1000/100/10 Mb per second data rates

Power Management Features
- Wake-on-LAN (WOL), USB, PCI, mouse.
- RTC alarm.
- Supports ACPI S1/S4/S5 functions.

System Management
- SMBus (I2C).
- Temperature, voltage, and fan monitors.
- Chassis intrusion.

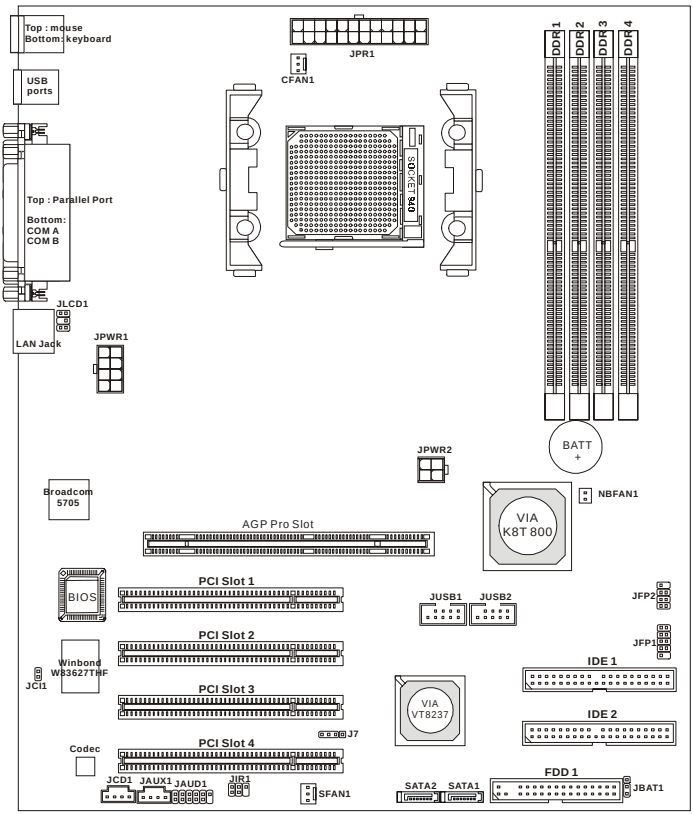
BIOS
- 4 Mb flash EEPROM.
- PCI 2.2 compliant, VPD, and DMI.
- PnP 1.0A, SMBIOS 2.3, ACPI 1.0A/2.0.
- Supports PXE boot protocol.
- APM 1.2, WOL.
- PC2001 system design compliant.

Onboard Peripherals
- 2 x IDE ports.
- 1 x PS/2 keyboard port and 1 x PS/2 mouse port.
- 2 x serial ports.
- 1 x parallel port supports SPP/EPP/ECP mode.
- 1 x RJ-45 port (with LEDs).
- 6 x USB ports (front*4 and rear*2).
- 2 x SATA ports.

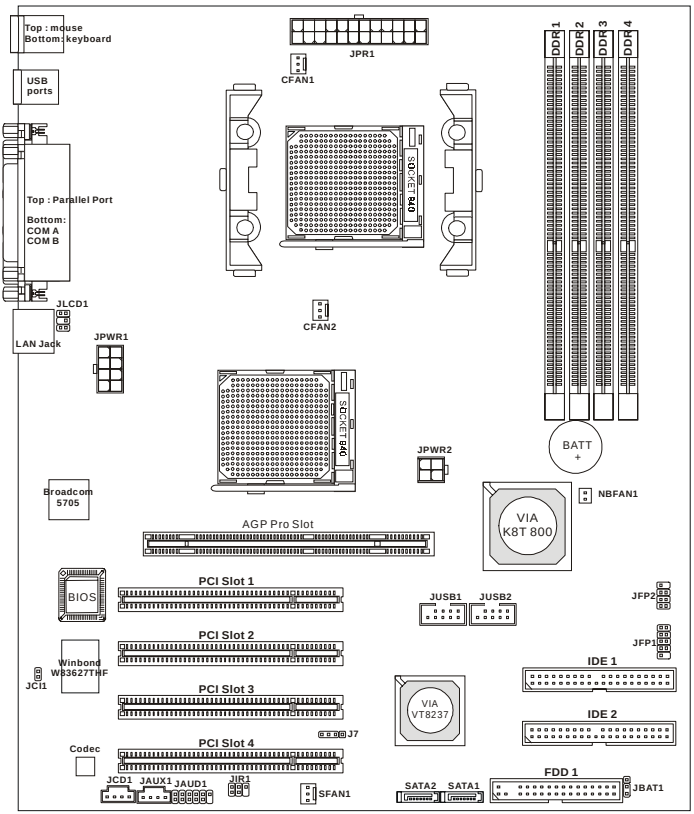
Dimension
- ATA Form Factor: 12.0 x 10.0 inch (H x W).

Mounting
- 9 mounting holes (ATX Form standard).

Mainboard Layout



K8T Master1-FAR (MS-9130 v1.X) Mainboard



K8T Master2-FAR (MS-9130 v1.X) Mainboard

MSI Special Features

Core Center

The Core Center is a new utility you can find in the CD-ROM disk. The utility is just like your PC doctor that can detect, view and adjust the PC hardware and system status during real time operation. In the left side it shows the current system status, including the Vcore, 3.3V, +5V and 12V. In the right side it shows the current PC hardware status such as the CPU & system temperatures and all fans speeds.

When you click the red triangles in the left and right sides, two sub-menus will open for users to overclock, overspec or to adjust the thresholds of system to send out the warning messages. If you click the ***Core Center*** button on the top, a screen pops up for you to choose the "***Auto mode***" or "***User mode***" of CPU fan. You may adjust the speeds of CPU fans and system fan here.

Left-side: Current system status

In the left sub-menu, you can configure the settings of FSB, Vcore, Memory Voltage and AGP Voltage by clicking the radio button in front of each item and make it available (the radio button will be lit as yellow when selected), use the "**+**" and "**-**" buttons to adjust, then click "***ok***" to apply the changes. Then you can click ***Save*** to save the desired FSB you just configured.

Also you may click ***Auto*** to start testing the maximal CPU overclocking value, The CPU FSB will automatically increase the testing value until the PC reboots. Or you may click ***Default*** to restore the default values.

Right-side: PC hardware status during real time operation

In the right sub-menu, here you can configure the PC hardware status such as CPU & system temperatures and fan speeds. You may use the scroll bars to adjust each item, then click "***ok***" to apply the changes. The values you set for the temperatures are the maximum thresholds for the system for warnings, and the value for fan speeds are the minimum thresholds.

Top-side: User mode/Auto mode

Here you may adjust the CPU fan speed. If you choose ***User mode***, you may adjust the CPU fan speed in 8 different modes, from **Stop** to **Full speed**.

MSI Reminds You...

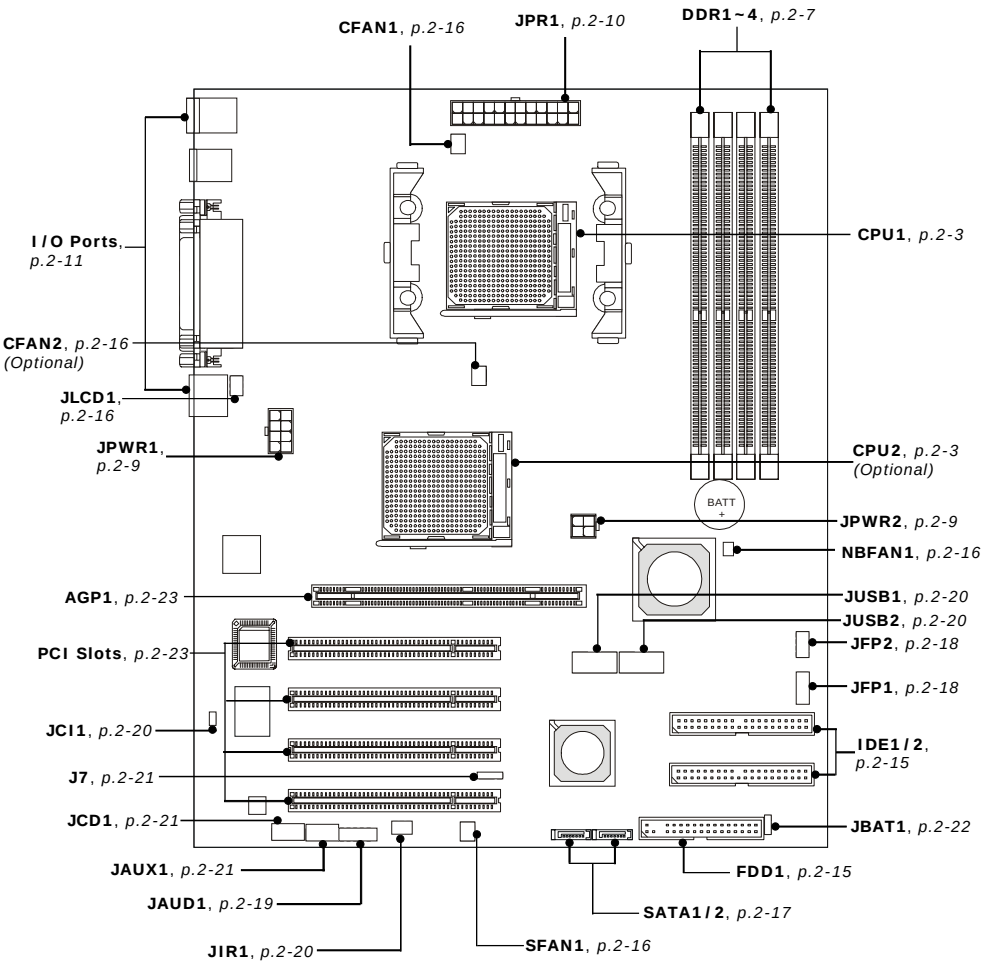
Items shown on Core Center vary depending on your system status.

Hardware Setup

This chapter provides you with the information about hardware setup procedures. While doing the installation, be careful in holding the components and follow the installation procedures. For some components, if you install in the wrong orientation, the components will not work properly.

Use a grounded wrist strap before handling computer components. Static electricity may damage the components.

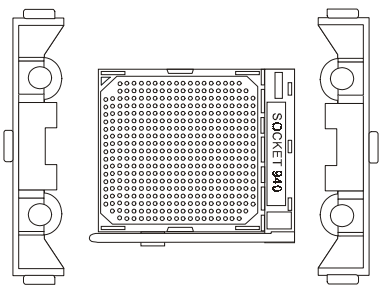
Quick Components Guide



Central Processing Unit: CPU

The mainboard supports **Single (for K8T Master1-FAR) / Dual (for K8T Master2-FAR)** AMD® Opteron DP™ processor (s). The mainboard uses two CPU sockets called Socket 940 for easy CPU installation. You can install SINGLE or DUAL CPUs on the mainboard to meet your own needs. Keep the following points in mind before installing CPU(s):

1. If **SINGLE** CPU is intended, always install the CPU on the **CPU1** socket.



CPU1 & CPU2

2. To install **DUAL** CPUs on the board, you must use **the same type of CPUs running at the same frequency**.

When you are installing the CPU, **make sure the CPU has a Heat Sink and a cooling fan attached on the top to prevent overheating.** If you do not find the Heat Sink and cooling fan, contact your dealer to purchase and install them before turning on the computer.

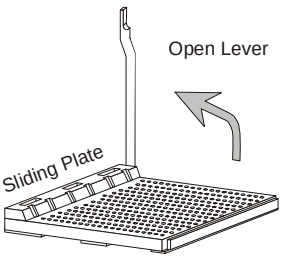
MSI Reminds You...

Overheating will seriously damage the CPU and system, always make sure the cooling fan can work properly to protect the CPU from overheating.
The system temperature needs to remain under 45°C.
We highly recommend that the direction of inlet air should follow the direction indicated above for better cooling effect.

CPU Installation Procedures for Socket 940

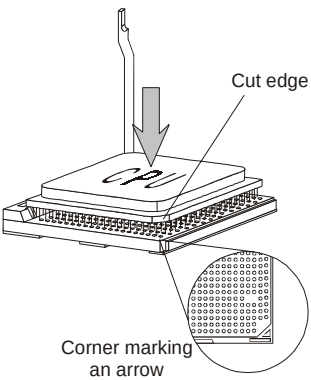
1. Make sure that the computer is turned off, and the power cord disconnected before installing the CPU.

2. Pull the lever sideways away from the socket, and raise it up to a 90-degree angle.

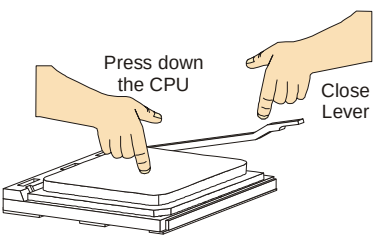


3. Locate the cut edge of the CPU. When the CPU is installed into the socket, this cut edge should be aligned with the corner marking an arrow on the Socket 940.

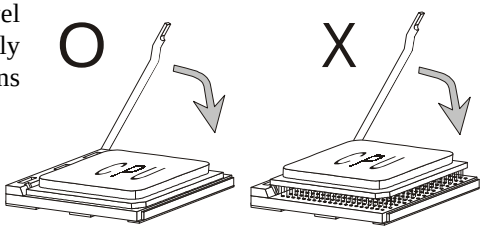
   Please note that the CPU can only fit in a correct orientation, **DO NOT** use force to install the CPU into the socket.



4. Place the CPU onto the socket and press it down firmly into the socket. The pins of the CPU should be embedded into the socket completely.



5. Close the lever to secure the CPU. Do not close the level until the CPU's pins are fully inserted; otherwise, the pins may be damaged.



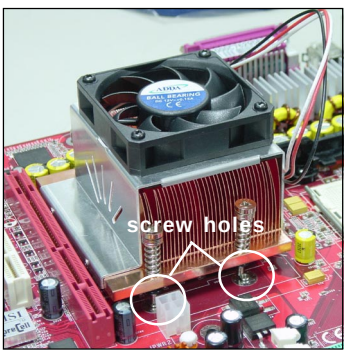
Installing the CPU heatsink/cooler

As processor technology pushes to faster speeds and higher performance, thermal management becomes increasingly important. To dissipate heat, you need to attach the CPU heatsink/cooler on top of the CPU.

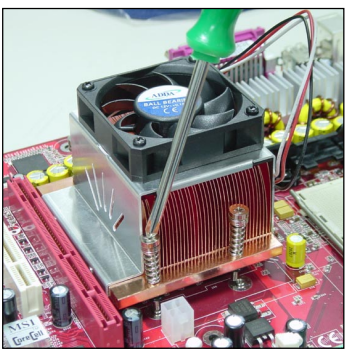
Here we provide two kinds of heatsink/cooler for each CPU. Please be sure to follow the instructions below to install the correct heatsink/cooler into the correct CPU:

For CPU2 of K8T Master2-FAR:

1. Locate the 4 screws of the heatsink to the 4 screw holes in the CPU area on the mainboard.

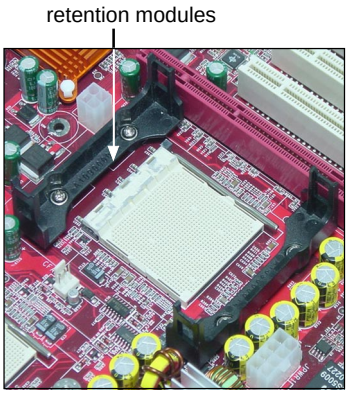


2. Use the screw driver to fasten each screw into each screw hole. Please note the orientation of the heatsink/cooler for CFAN2 should be the same as shown below to prevent the intervention with AGP card.

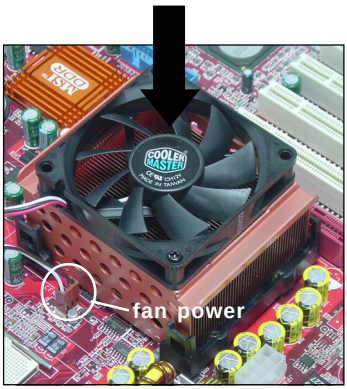


For CPU1 of K8T Master1-FAR & K8T Master2-FAR:

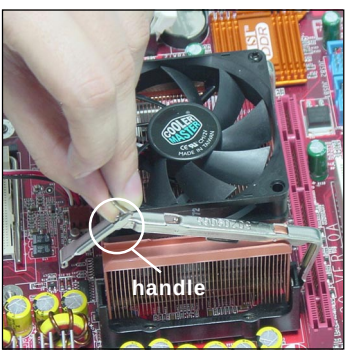
1. Locate the CPU and its retention modules on the motherboard.



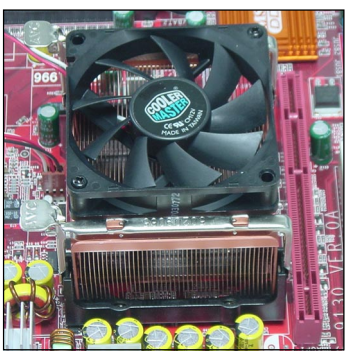
2. Position the heatsink/cooler onto the retention modules. Connect the wires to the fan power connector (CFAN1), then press down the fan until its four clips get wedged in the holes of the retention modules.



3. Hook one end of the clip into the hole of the retention module, then push down the handle to hook the other end to the retention module.

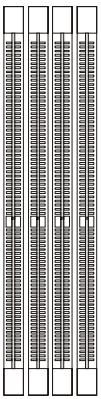


4. Repeat step 3 on the other clip.



Memory

The mainboard provides four slots for 184-pin DDR SDRAM DIMM (Double In-Line Memory Module) modules and supports up to 4GB memory size. You can install PC3200/DDR400, PC2700/DDR333, PC2100/DDR266, or PC1600/DDR200 modules on the DDR DIMM slots (DDR 1~4).



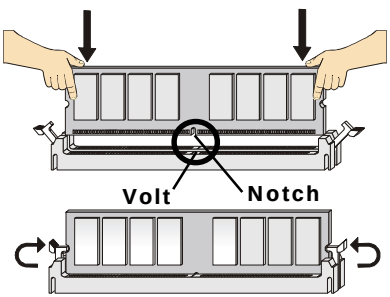
DDR DIMM Slots (DDR1~4)

Installing DDR Modules

1. The DDR DIMM has only one notch on the center of module. The module will only fit in the right orientation.

2. Insert the DIMM memory module vertically into the DIMM slot. Then push it in until the golden finger on the memory module is deeply inserted in the socket.

3. The plastic clip at each side of the DIMM slot will automatically close.



Memory Population Rules

The mainboard supports DDR400/333/266/200 memory interface.

Each DIMM slot supports up to a maximum size of 2GB. Users can install either single- or double-sided modules depending on their needs.

Memory modules can be installed in any combination as follows:

Slot	Memory Module Population Rules (Dual channel - 128 bits)		
DIMM 1	Install		Install
DIMM 2	Install		Install
DIMM 3		Install	Install
DIMM 4		Install	Install

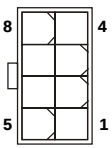
Slot	Memory Module Population Rules (Single channel - 64 bits)		
DIMM 1	Install		Install
DIMM 2			
DIMM 3		Install	Install
DIMM 4			

Power Supply

The mainboard supports SSI power supply for the power system, while ATX power supply is also available for this mainboard. Before inserting the power supply connector, always make sure that all components are installed properly to ensure that no damage will be caused.

SSI 8-Pin Power Connector: JPWR1

This connector is used to provide the power output to the CPU.



JPWR1

JPWR1 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	GND	5	+12V
2	GND	6	+12V
3	GND	7	+12V
4	GND	8	+12V

MSI Reminds You...

For this JPWR1 power connector, you may use the 4-pin ATX power supply or 8-pin SSI power supply as you like. If you'd like to use the SSI power supply, please remove the sticker (covered the 1, 2, 5 and 6 pins, shown as the photo in the right) marked "SSI ONLY" on the JPWR1 power connector to insert the SSI power supply in the proper orientation for correct alignment. If you'd like to use the ATX power supply, please just insert your power supply in the rest pins without removing the sticker.

SSI 12V Power Connector: JPWR2 (Optional)

This connector is used to provide +12V power output to AGP Pro add-on card.

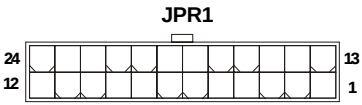
JPWR2

JPWR2 Pin Definition

PIN	SIGNAL
1	GND
2	GND
3	12V
4	12V

SSI 24-Pin Power Connector: JPR1

This connector allows you to connect an SSI power supply. To connect the SSI power supply, make sure the plug of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector.

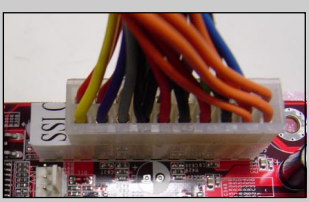


JPR1 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS-ON#
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	PWR OK	20	Res
9	5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND

MSI Reminds You...

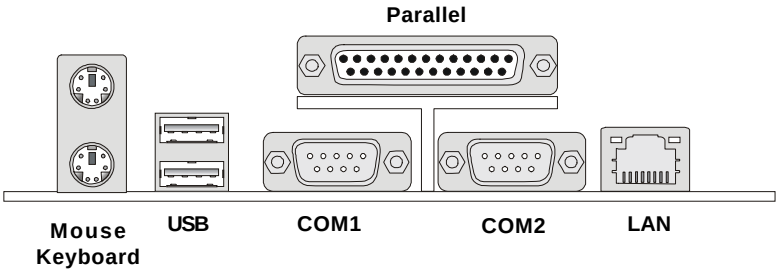
For this JPR1 power connector, you may use the 20-pin ATX power supply or 24-pin SSI power supply as you like. If you'd like to use the SSI power supply, please remove the sticker (covered the 11, 12, 23 and 24 pins, shown as the photo below) marked "SSI ONLY" on the JPR1 power connector to insert the SSI power supply in the proper orientation for correct alignment. If you'd like to use the ATX power supply, please just insert your power supply in the rest pins without removing the sticker.



Back Panel

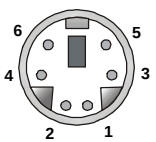
View of the Back Panel

The back panel provides the following connectors:



Mouse Connector

The mainboard provides a standard PS/2® mouse mini DIN connector for attaching a PS/2® mouse. You can plug a PS/2® mouse directly into this connector. The connector location and pin assignments are as follows.



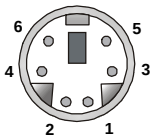
PS/2 Mouse (6-pin Female)

Pin Definition

PIN	SIGNAL	DESCRIPTION
1	Mouse Data	Mouse data
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Mouse Clock	Mouse clock
6	NC	No connection

Keyboard Connector

The mainboard provides a standard PS/2® keyboard mini DIN connector for attaching a PS/2® keyboard. You can plug a PS/2® keyboard directly into this connecto. The connector location and pin assignments are as follows.



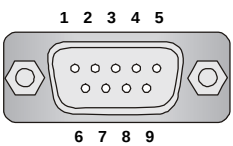
PS/2 Keyboard (6-pin Female)

Pin Definition

PIN	SIGNAL	DESCRIPTION
1	Keyboard Data	Keyboard data
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Keyboard Clock	Keyboard clock
6	NC	No connection

Serial Ports: COM1 & COM2

The mainboard provides two 9-pin mail DIN connectors as serial port COM1 & COM2. The serial port is a 16550A high speed communication port that sends/receives 16 bytes FIFOs. You can attach a serial mouse or other serial device directly to it.



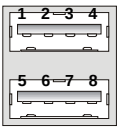
COM1 & COM2

Pin Definition

PIN	SIGNAL	DESCRIPTION
1	DCD	Data Carry Detect
2	SIN	Serial In or Receive Data
3	SOUT	Serial Out or Transmit Data
4	DTR	Data Terminal Ready
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicate

USB Ports

The mainboard provides a UHCI (Universal Host Controller Interface) Universal Serial Bus root for attaching USB devices such as keyboard, mouse or other USB-compatible devices. You can plug USB devices directly into the ports.



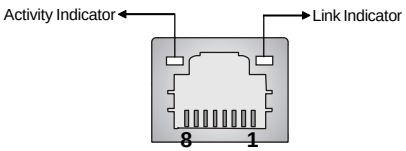
USB Ports

Pin Definition

PIN	SIGNAL	DESCRIPTION
1	VCC	+5V
2	-Data 0	Negative Data Channel 0
3	+Data 0	Positive Data Channel 0
4	GND	Ground
5	VCC	+5V
6	-Data 1	Negative Data Channel 1
7	+Data 1	Positive Data Channel 1
8	GND	Ground

RJ-45 LAN Jack: Giga-bit LAN

The mainboard provides two standard RJ-45 jacks for connection to Local Area Network (LAN). Giga-bit LAN enables data to be transferred at 1000, 100 or 10Mbps. You can connect a network cable to either LAN jack.



RJ-45 LAN Jack

The pin assignments vary depending on the transfer rates: 10/100Mbps or 1000Mbps. Note that Pin 1/2, 3/6, 4/5, 7/8 must work in pairs. Please refer to the following for details:

10/100 LAN Pin Definition

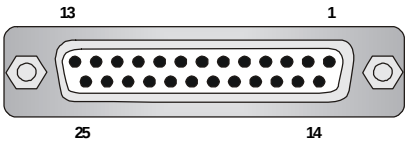
PIN	SIGNAL	DESCRIPTION
1	TDP	Transmit Differential Pair
2	TDN	Transmit Differential Pair
3	RDP	Receive Differential Pair
4	NC	Not Used
5	NC	Not Used
6	RDN	Receive Differential Pair
7	NC	Not Used
8	NC	Not Used

Giga-bit LAN Pin Definition

PIN	SIGNAL	DESCRIPTION
1	D0P	Differential Pair 0+
2	D0N	Differential Pair 0-
3	D1P	Differential Pair 1+
4	D2P	Differential Pair 2+
5	D2N	Differential Pair 2-
6	D1N	Differential Pair 1-
7	D3P	Differential Pair 3+
8	D3N	Differential Pair 3-

Parallel Port

The mainboard provides a 25-pin female centronic connector as LPT. A parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) mode.



Pin Definition

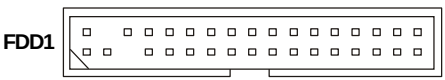
PIN	SIGNAL	DESCRIPTION
1	STROBE	Strobe
2	DATA0	Data0
3	DATA1	Data1
4	DATA2	Data2
5	DATA3	Data3
6	DATA4	Data4
7	DATA5	Data5
8	DATA6	Data6
9	DATA7	Data7
10	ACK#	Acknowledge
11	BUSY	Busy
12	PE	PaperEnd
13	SELECT	Select
14	AUTO FEED#	Automatic Feed
15	ERR#	Error
16	INIT#	Initialize Printer
17	SLIN#	Select In
18	GND	Ground
19	GND	Ground
20	GND	Ground
21	GND	Ground
22	GND	Ground
23	GND	Ground
24	GND	Ground
25	GND	Ground

Connectors

The mainboard provides connectors to connect FDD, IDE HDD, front panel of the system case, audio ports, USB Ports, and CPU/System FANs.

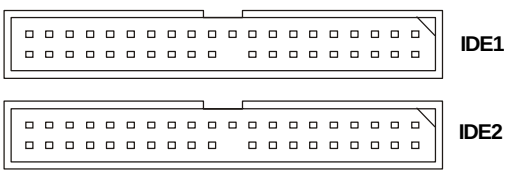
Floppy Disk Drive Connector: FDD1

The mainboard provides a standard floppy disk drive connector that supports 360KB, 720KB, 1.2MB, 1.44MB and 2.88MB floppy disk types.



Hard Disk Connectors: IDE1 & IDE2

The mainboard provides a 32-bit Enhanced PCI IDE and Ultra DMA 33/66/100/133 controller that supports PIO mode 0 ~ 4, Bus Master, and Ultra DMA 33/66/100/133 function. You can connect up to four hard disk drives, CD-ROM drives, 120MB floppy disk drive (reserved for future BIOS), and other devices.

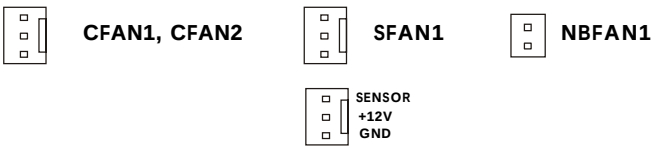


MSI Reminds You...

If you install two hard disks on cable, you must configure the second drive to Slave mode by setting its jumper. Refer to the hard disk documentation supplied by hard disk vendors for jumper setting instructions.

Fan Power Connectors: CFAN1/2, SFAN1, NBFAN1

The CAN1/2 (processor fan), SFAN1 (system fan) and NBFAN1 (Northbridge fan) support system cooling fan with +12V. It supports 3-pin head connector. When connecting the wire to the connectors, always take note that the red wire is the positive and should be connected to the +12V, the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.



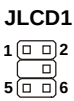
Fan Connector Pin Definition

MSI Reminds You...

Always consult the vendors for proper CPU cooling fan.

LCD Panel Connector: JLCD1

The connector is additionally provided for connection to a LCD panel, which shows information on the panel for you to identify the current status or mode of the connected system.

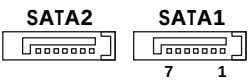


PIN	SIGNAL
1	TX
2	RX
3	NC
4	GND1
5	GND0
6	VCC

Serial ATA/Serial ATA RAID Connectors controlled by VT8237: SATA1 & SATA2

The Southbridge of this mainboard is VIA VT8237 which supports two serial connectors SATA1& SATA2.

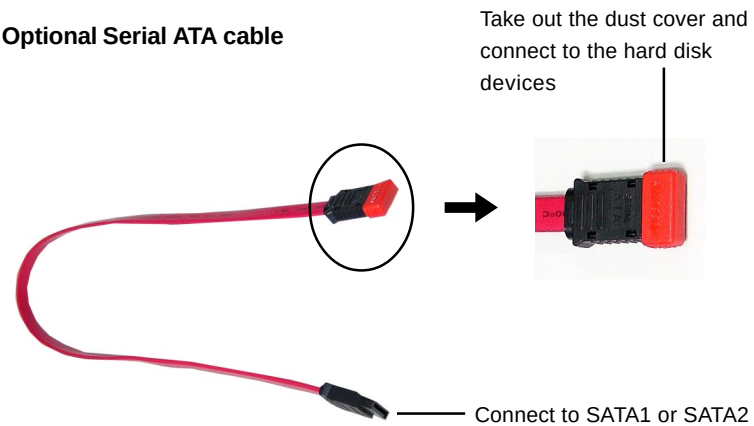
SATA1 & SATA2 are dual high-speed Serial ATA interface ports. Each supports 1st generation serial ATA data rates of 150 MB/s. Both connectors are fully compliant with Serial ATA 1.0 specifications. Each Serial ATA connector can connect to 1 hard disk device. Please refer to *Appendix A: VIA VT8237 Serial ATA RAID Introduction* at page A-1for detail software installation procedure.



SATA1 & SATA2 Pin Definition

Pin	Signal	Pin	Signal
1	GND	2	TXP
3	TXN	4	GND
5	RXN	6	RXP
7	GND		

Optional Serial ATA cable

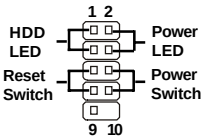


MSI Reminds You...

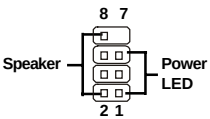
Please do not fold the serial ATA cable in a 90-degree angle, which will cause the loss of data during the transmission.

Front Panel Connectors: JFP1 & JFP2

The mainboard provides two front panel connectors for electrical connection to the front panel switches and LEDs. JFP1 is compliant with Intel® Front Panel I/O Connectivity Design Guide.



JFP1



JFP2

JFP1 Pin Definition

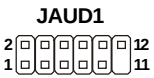
PIN	SIGNAL	DESCRIPTION
1	HD_LED_P	Hard disk LED pull-up
2	FP PWR/SLP	MSG LED pull-up
3	HD_LED_N	Hard disk active LED
4	FP PWR/SLP	MSG LED pull-up
5	RST_SW_N	Reset Switch low reference pull-down to GND
6	PWR_SW_P	Power Switch high reference pull-up
7	RST_SW_P	Reset Switch high reference pull-up
8	PWR_SW_N	Power Switch low reference pull-down to GND
9	RSVD_DNU	Reserved. Do not use.

JFP2 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	GND	2	SPK-
3	SLED	4	BUZ+
5	PLED	6	BUZ-
7	NC	8	SPK+

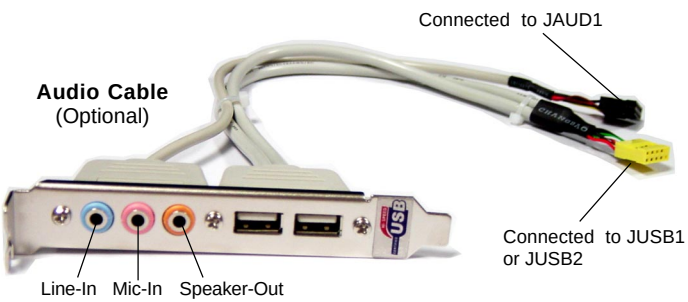
Front Panel Audio Connector: JAUD1

The mainboard provides one front audio connector for users to connect the optional audio cable.



Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	AUD_GND	2	AUD_GND
3	AUD_GND	4	LINE_IN_R
5	AUD_GND	6	LINE_IN_L
7	AUD_GND	8	MIC_IN
9	AUD_GND	10	HP_OUT_R
11	KEY	12	HP_OUT_L



Front USB Connectors: JUSB1 & JUSB2

The mainboard provide two front Universal Serial Bus connectors for users to connect to USB ports.

JUSB1 & JUSB2

Pin Definition

Pin	Description	Pin	Description
1	USBPWR	2	USBPWR
3	USBP2-	4	USBP3-
5	USBP2+	6	USBP3+
7	GND	8	GND
9	NC	10	GND

IrDA Infrared Module Header: JIR1

The connector allows you to connect to IrDA Infrared module. You must configure the setting through the BIOS setup to use the IR function. JIR1 is compliant with Intel® Front Panel I/O Connectivity Design Guide.

JIR1

JIR1 Pin Definition

Pin	Signal
1	NC
2	NC
3	VCC5
4	GND
5	IRTX
6	IRRX

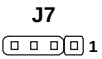
Chassis Intrusion Switch Connector: JCI1

This connector is connected to a 2-pin chassis switch. If the chassis is opened, the switch will be short. The system will record this status and show a warning message on the screen. To clear the warning, you must enter the BIOS utility and clear the record.

JCI1

SCSI LED Connector: J7

Connect the J7 to the LED connector on the add-on SCSI adaptor and the HDD LED will blink when add-on SCSI device is active.

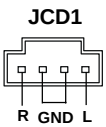


Pin Definition

PIN	SIGNAL
1	VCC5
2	SCSI LED
3	HDD LED
4	VCC5

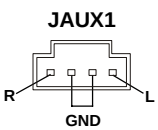
CD-In Connector: JCD1

This connector is provided for CD-ROM audio.



Aux Line-In Connector: JAUX1

The connector is for DVD add-on card with Line-in connector.



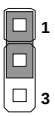
Jumpers

The mainboard provides the following jumpers for you to set the computer's function. This section will explain how to change your mainboard's function through the use of jumpers.

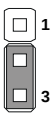
Clear CMOS Jumper: JBAT1

There is a CMOS RAM on board that has a power supply from external battery to keep the data of system configuration. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, use the JBAT1 (Clear CMOS Jumper) to clear data. Follow the instructions below to clear the data:

JBAT1



Keep Data



Clear Data

MSI Reminds You...

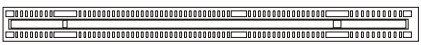
You can clear CMOS by shorting 2-3 pin while the system is off. Then return to 1-2 pin position. Avoid clearing the CMOS while the system is on; it will damage the mainboard.

Slots

The ***K8D Master Series*** mainboards provide one AGP slot and four 32-bit/33 MHz PCI slots.

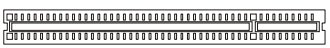
AGP (Accelerated Graphics Port) Slot

The AGP slot allows you to insert the AGP graphics card. AGP is an interface specification designed for the throughput demands of 3D graphics. It introduces a 66MHz, 32-bit channel for the graphics controller to directly access main memory. The slot supports 8x/4x AGP card.



PCI (Peripheral Component Interconnect) Slots

The PCI slots allow you to insert the expansion cards to meet your needs. When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to make any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.



PCI Interrupt Request Routing

The IRQ, acronym of interrupt request line and pronounced I-R-Q, are hardware lines over which devices can send interrupt signals to the microprocessor. The PCI IRQ pins are typically connected to the PCI bus INT A# ~ INT D# pins as follows:

	Order 1	Order 2	Order 3	Order 4
PCI Slot 1	INT A#	INT B#	INT C#	INT D#
PCI Slot 2	INT B#	INT C#	INT D#	INT A#
PCI Slot 3	INT C#	INT D#	INT A#	INT B#
PCI Slot 4	INT D#	INT A#	INT B#	INT C#

BIOS Setup

This chapter provides information on the BIOS Setup program and allows you to configure the system for optimum use.
You may need to run the Setup program when:

- An error message appears on the screen during the system booting up, and requests you to run SETUP.
- You want to change the default settings for customized features.

Entering Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <DEL> key to enter Setup.

```
Press DEL to enter SETUP
```

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

Control Keys

<↑>	Move to the previous item
<↓>	Move to the next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Enter>	Select the item
<Esc>	Jumps to the Exit menu or returns to the main menu from a submenu
<+/PU>	Increase the numeric value or make changes
<-/PD>	Decrease the numeric value or make changes
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F5>	Load Previous Values
<F6>	Load Fail-safe Defaults
<F7>	Load Optimized Defaults
<F10>	Save and Exit Setup

Getting Help

After entering the Setup menu, the first menu you will see is the Main Menu.

Main Menu

The main menu lists the setup functions you can make changes to. You can use the control keys (↑↓) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Sub-Menu

If you find a right pointer symbol (as shown in the right view) appears to the left of certain fields that means a sub-menu containing additional options can be launched from this field. You can use control keys (↑↓) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press <Esc >.

General Help <F1>

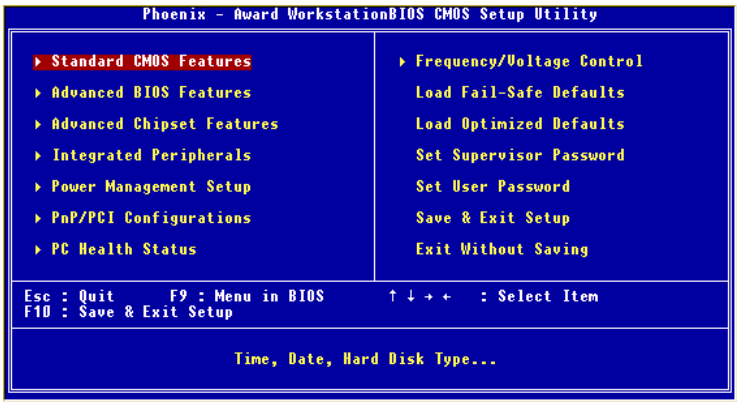
The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

MSI Reminds You...

The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.

The Main Menu

Once you enter Award® BIOS CMOS Setup Utility, the Main Menu (figure below) will appear on the screen. The Main Menu allows you to select from twelve setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.



Standard CMOS Features
Use this menu for basic system configurations, such as time, date etc.

Advanced BIOS Features
Use this menu to setup the items of Award® special enhanced features.

Advanced Chipset Features
Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals
Use this menu to specify your settings for integrated peripherals.

Power Management Setup
Use this menu to specify your settings for power management.

PnP/PCI Configurations
This entry appears if your system supports PnP/PCI.

PC Health Status
This entry shows your PC health status.

Frequency/Voltage Control
Use this menu to specify your settings for frequency/voltage control.

Load Fail-Safe Defaults
Use this menu to load the BIOS values for the best system performance, but the system stability may be affected.

Load Optimized Defaults
Use this menu to load factory default settings into the BIOS for stable system performance operations.

Set Supervisor Password
Use this menu to set Supervisor Password.

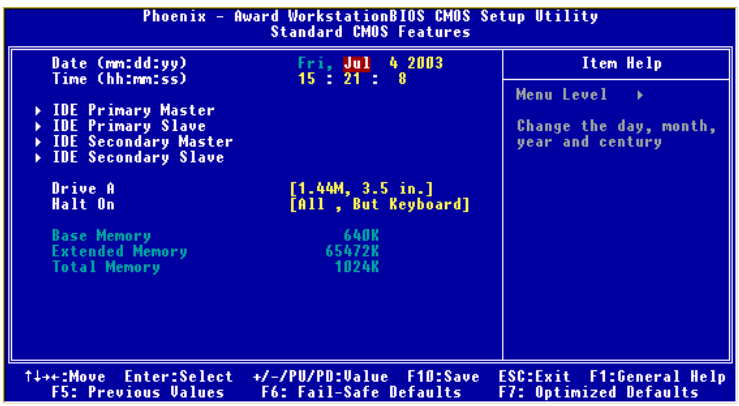
Set User Password
Use this menu to set User Password.

Save & Exit Setup
Save changes to CMOS and exit setup.

Exit Without Saving
Abandon all changes and exit setup.

Standard CMOS Features

The items in Standard CMOS Features Menu are divided into 11 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.


Phoenix - Award WorkstationBIOS CMOS Setup Utility
Standard CMOS Features
Date (mm:dd:yy) Fri, Jul 4 2003
Time (hh:mm:ss) 15 : 21 : 8
IDE Primary Master
IDE Primary Slave
IDE Secondary Master
IDE Secondary Slave
Drive A [1.44M, 3.5 in.]
Halt On [All , But Keyboard]
Base Memory 640K
Extended Memory 65472K
Total Memory 1024K
Item Help
Menu Level ▸
Change the day, month, year and century
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Date

The date format is <day> <month> <date> <year>.

day	Day of the week, from Sun to Sat, determined by BIOS. Read-only.
month	The month from Jan. through Dec.
date	The date from 1 to 31 can be keyed by numeric function keys.
year	The year can be adjusted by users.

Time

The time format is <hour> <minute> <second>.

IDE Primary/Secondary Master/Slave

Press PgUp/<+> or PgDn/<-> to select *Manual*, *None* or *Auto* type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use *Manual* to define your own drive type manually.

If you select *Manual*, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

Access Mode	The settings are CHS, LBA, Large, Auto.
Capacity	The formatted size of the storage device.
Cylinder	Number of cylinders.
Head	Number of heads.
Precomp	Write precompensation.
Landing Zone	Cylinder location of the landing zone.
Sector	Number of sectors.

Drive A

This item allows you to set the type of floppy drives installed. Available options: *None, 360K, 5.25 in., 1.2M, 5.25 in., 720K,* 3.5 in., *1.44M, 3.5 in., 2. 88M, 3.5 in.*

Halt On

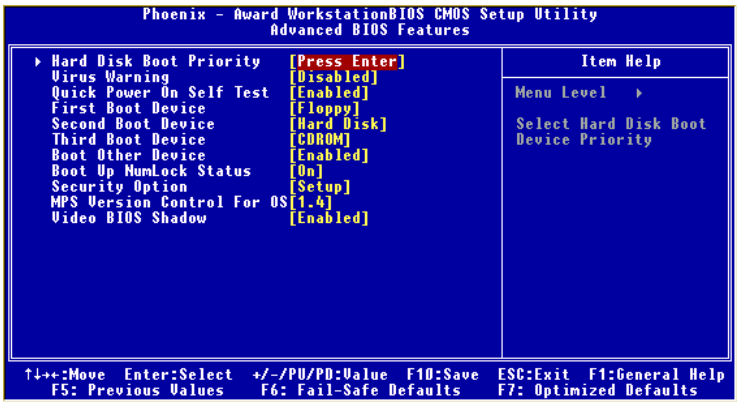
The setting determines whether the system will stop if an error is detected at boot. Available options are:

All Errors	The system stops when any error is detected.
Disabled	The system doesn't stop for any detected error.
All, But Keyboard	The system doesn't stop for a keyboard error.
All, But Diskette	The system doesn't stop for a disk error.
All, But Disk/Key	The system doesn't stop for either a disk or a keyboard error.

Base/Extended/Total Memory

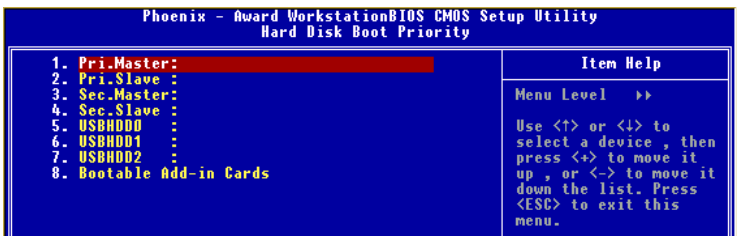
The three items show the memory status of your system (read only).

Advanced BIOS Features


Phoenix - Award WorkstationBIOS CMOS Setup Utility
Advanced BIOS Features
Hard Disk Boot Priority [Press Enter]
Virus Warning [Disabled]
Quick Power On Self Test [Enabled]
First Boot Device [Floppy]
Second Boot Device [Hard Disk]
Third Boot Device [CDROM]
Boot Other Device [Enabled]
Boot Up NumLock Status [On]
Security Option [Setup]
MPS Version Control For OS [1.4]
Video BIOS Shadow [Enabled]
Item Help
Menu Level
Select Hard Disk Boot Device Priority
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Hard Disk Boot Priority

Press <Enter> and the following sub-menu appears:


Phoenix - Award WorkstationBIOS CMOS Setup Utility
Hard Disk Boot Priority
1. Pri.Master:
2. Pri.Slave :
3. Sec.Master:
4. Sec.Slave :
5. USBHDD0 :
6. USBHDD1 :
7. USBHDD2 :
8. Bootable Add-in Cards
Item Help
Menu Level
Use <↑> or <↓> to select a device , then press <+> to move it up , or <-> to move it down the list. Press <ESC> to exit this menu.

Select the hard disk priority (from the 1st to the 8th) in this list. Use the arrow-up and arrow-down keys to select a device, then press <+> to move it up or <-> to move it down.

Virus Warning

The item is to set the Virus Warning feature for IDE Hard Disk boot sector protection. If the function is enabled and any attempt to write data into this area is made, BIOS will display a warning message on screen and beep. Settings: *Disabled, Enabled.*

Quick Power On Self Test

Select *Enabled* to reduce the amount of time required to run the power-on self-test (POST). A quick POST skips certain steps. We recommend that you normally disable quick POST. Better to find a problem during POST than lose data during your work.

1st/2nd/3rd Boot Device
The items allow you to set the sequence of boot devices where BIOS attempts to load the disk operating system. The settings are:

Floppy	The system will boot from floppy drive.
LS120	The system will boot from LS-120 drive.
Hard Disk	The system will boot from the hard disk.
CDROM	The system will boot from the CD ROM.
ZIP100	The system will boot from the ATAPI ZIP drive.
USB-FDD	The system will boot from the USB-interface floppy drive.
USB-ZIP	The system will boot from the USB-interface ZIP drive.
USB-CDROM	The system will boot from the USB-interface CD-ROM.
Legacy LAN	The system will boot from the Network drive.
Disabled	Disable this sequence.

Boot Other Device
Setting the option to *Enabled* allows the system to try to boot from other device if the system fails to boot from the 1st/2nd/3rd boot device.

Boot Up NumLock Status
Toggle between *On* or *Off* to control the state of the NumLock key when the system boots. When toggled *On*, the numeric keypad generates numbers instead of controlling cursor operations.

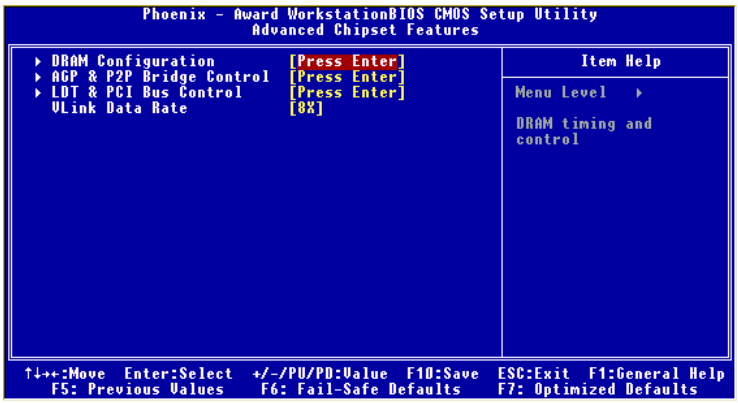
Security Option
This specifies the type of BIOS password protection that is implemented. Settings are described below:

Option	Description
Setup	The password prompt appears only when end users try to run Setup.
System	A password prompt appears every time when the computer is powered on or when end users try to run Setup.

MPS Version Control For OS
This field allows you to select which MPS (Multi-Processor Specification) version to be used for the operating system. You need to select the MPS version supported by your operating system. To find out which version to use, consult the vendor of your operating system. Settings: *1.4*, *1.1*.

Video BIOS Shadow
This allows you to copy Video BIOS to shadow RAM. When setting to *Enabled*, the performance improves. Settings: *Enabled* and *Disabled*.

Advanced Chipset Features

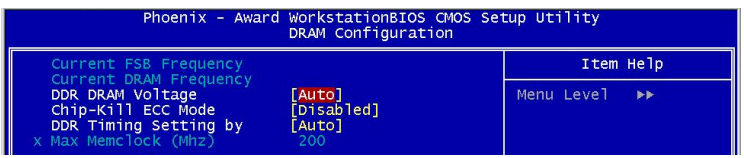

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Advanced Chipset Features
DRAM Configuration [Press Enter]
AGP & P2P Bridge Control [Press Enter]
LDT & PCI Bus Control [Press Enter]
VLink Data Rate [8X]
Item Help
Menu Level ▸
DRAM timing and control
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

MSI Reminds You...

Change these settings only if you are familiar with the chipset.

DRAM Configuration

Press <Enter> and the following sub-menu appears:



Current FSB Frequency, Current DRAM Frequency

Those two items are read-only to show the current FSB and DRAM Frequency information.

DDR DRAM Voltage

This setting is used to adjust the DRAM voltage, for supporting DDR400. Setting options: *Auto, 2.50V, 2.55V, 2.60V* (for DDR400), *2.65V*.

Chip-kill ECC Mode

This setting is used to enable or disable the chip-kill ECC (error checking and correcting) function. Setting options: *Enabled, Disabled.*

DDR Timing Setting by

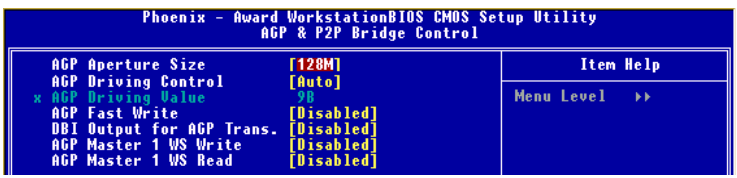
This field allows you to select the DDR timing setting. Setting to *Auto* enables Max Memclock (Mhz) automatically to be determined by SPD. Selecting *Manual* allows users to configure these fields manually.

Max Memclock (Mhz)

When it is set to *Manual* in "DDR Timing Setting by", user can place an artificial memory clock limit on the system. Please note that memory is prevented from running faster than this frequency. Setting options: *100, 133, 166, 200.*

AGP & P2P Bridge Control

Press <Enter> and the following sub-menu appears:


Phoenix - Award WorkstationBIOS CMOS Setup Utility
AGP & P2P Bridge Control
AGP Aperture Size [128M]
AGP Driving Control [Auto]
x AGP Driving Value 9B
AGP Fast Write [Disabled]
DBI Output for AGP Trans. [Disabled]
AGP Master 1 WS Write [Disabled]
AGP Master 1 WS Read [Disabled]
Item Help
Menu Level ▸▸

AGP Aperture Size

This setting controls just how much system RAM can be allocated to AGP for video purposes. The aperture is a portion of the PCI memory address range dedicated to graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. The option allows the selection of an aperture size of *32MB, 64MB, 128MB* and *256MB.*

AGP Driving Control

This item is used to adjust the AGP driving force. Selecting *Manual* allows you to select an AGP driving force in **AGP Driving Value**. It is strongly recommended to select *Auto* to avoid any system error caused.

AGP Driving Value

This item specifies an AGP driving force.

AGP Fast Write

This option enables or disables the AGP Fast Write feature. The Fast Write technology allows the CPU to write directly to the graphics card without passing anything through the system memory and improves the AGP 4X speed.

DBI Output for AGP Trans.

DBI means Dynamic Bus Inversion and this item is used in AGP 8x mode only. Driven by the source to indicate whether the corresponding data bit group needs to be inverted on the receiving end. Used to limit the number of simultaneously switching outputs to 8 for each 16-pin group. It is not available if your AGP card is not 8x-supported.

AGP Master 1 WS Write

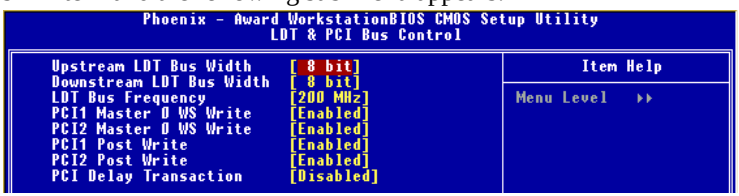
When *Enabled* is selected , writes to the AGP bus are executed with one wait state inserted.

AGP Master 1 WS Read

When *Enabled* is selected, one wait state is inserted in the AGP read cycle.

LDT & PCI Bus Control

Press <Enter> and the following sub-menu appears:


Phoenix - Award WorkstationBIOS CMOS Setup Utility
LDT & PCI Bus Control
Upstream LDT Bus Width [8 bit]
Downstream LDT Bus Width [8 bit]
LDT Bus Frequency [200 MHz]
PCI1 Master 0 WS Write [Enabled]
PCI2 Master 0 WS Write [Enabled]
PCI1 Post Write [Enabled]
PCI2 Post Write [Enabled]
PCI Delay Transaction [Disabled]
Item Help
Menu Level ▸▸

Upstream / Downstream LDT Bus Width

These two item control the utilized widths of the HyperTransport link. Setting options: *8 bit, 16 bit.*

LDT Bus Frequency

This item specifies the maximum operating frequency of the link's transmitter clock. Setting options: *Auto, 800 MHz, 600 MHz, 400 MHz, 200 MHz.*

PCI1/PCI2 Master 0 WS Write

When *Enabled*, writes to the PCI bus are executed with zero wait state.

PCI1/PCI2 Post Write

You can enable or disable the ability of the chipset to use a buffer for posted writes initiated on the PCI bus. Setting options: *Disabled, Enabled.*

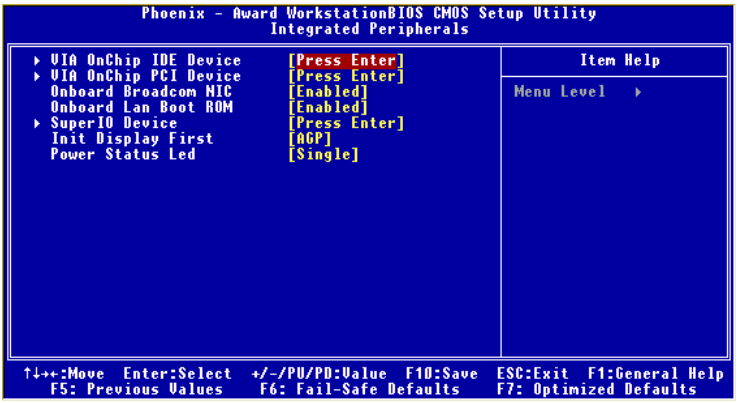
PCI Delayed Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select *Enabled* to support compliance with PCI specification version 2.1.

VLink Data Rate

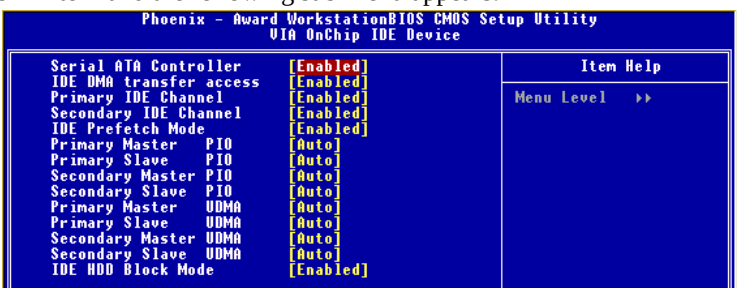
Use this item to select the VLink Data Rate. Setting options: *8X*, *4X*.

Integrated Peripherals


Phoenix - Award WorkstationBIOS CMOS Setup Utility
Integrated Peripherals
VIA OnChip IDE Device [Press Enter]
VIA OnChip PCI Device [Press Enter]
Onboard Broadcom NIC [Enabled]
Onboard Lan Boot ROM [Enabled]
SuperIO Device [Press Enter]
Init Display First [AGP]
Power Status Led [Single]
Item Help
Menu Level
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

VIA OnChip IDE Device

Press <Enter> and the following sub-menu appears:


Phoenix - Award WorkstationBIOS CMOS Setup Utility
VIA OnChip IDE Device
Serial ATA Controller [Enabled]
IDE DMA transfer access [Enabled]
Primary IDE Channel [Enabled]
Secondary IDE Channel [Enabled]
IDE Prefetch Mode [Enabled]
Primary Master PIO [Auto]
Primary Slave PIO [Auto]
Secondary Master PIO [Auto]
Secondary Slave PIO [Auto]
Primary Master UDMA [Auto]
Primary Slave UDMA [Auto]
Secondary Master UDMA [Auto]
Secondary Slave UDMA [Auto]
IDE HDD Block Mode [Enabled]
Item Help
Menu Level

Serial ATA controller

This allows you to enable or disable onchip Serial ATA controller. Settings: *Disabled* and *Enabled*.

IDE DMA transfer access

Setting to *Enabled* will open DMA bus master and execute DMA action in DOS, which will make the data transferring faster. Settings: *Disabled, Enabled.*

Primary/Secondary IDE Channel

The chipset contains a PCI IDE interface with support for two IDE channels. Select *Enabled* to activate the first and/or second IDE interface. Select *Disabled* to deactivate an interface, if you install a primary and/or secondary add-in IDE interface.

IDE Prefetch Mode

The onboard IDE drive interfaces support IDE prefetching, for faster drive accesses. When you install a primary and/or secondary add-in IDE interface, set this option to *Disabled* if the interface does not support prefetching.

Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In *Auto* mode, the system automatically determines the best mode for each device. The settings are: *Auto*, *Mode 0*, *Mode 1*, *Mode 2*, *Mode 3*, *Mode 4*.

Primary/Secondary Master/Slave Ultra DMA

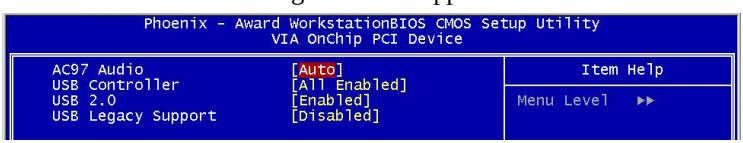
Ultra DMA 33/66/100/133 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows ME, XP or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, Ultra DMA/66, Ultra DMA/100 and Ultra DMA/133, select *Auto* to enable BIOS support. Settings: *Auto, Disabled*.

IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select *Enabled* for automatic detection of the optimal number of block read/write per sector the drive can support. Setting options: *Disabled, Enabled*.

VIA OnChip PCI Device

Press <Enter> and the following sub-menu appears:



AC97 Audio

Auto allows the motherboard's BIOS to detect whether you're using any audio device. If so, the onboard audio controller will be enabled. If not, the onboard audio controller will be disabled. If you want to use different

controller cards to connect audio connectors, set the field to *Disabled*. Setting options: *Disabled, Auto*.

USB Controller
Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals. Settings: *All Enabled, All Disabled, 1&2 USB Port, 2&3 USB Port, 1&3 USB Port, 1 USB Port, 2 USB Port, 3 USB Port.*

USB 2.0
Set to *Enabled* if you need to use any USB 2.0 device in the operating system that does not support or have any USB 2.0 driver installed, such as DOS and SCO Unix. Setting options: *Disabled, Enabled*.

USB Legacy Support
Set to *Enabled* if you need to use a USB keyboard/mouse in the operating system that does not support or does not have any USB driver installed, such as DOS and SCO Unix. Setting options: *Disabled, Enabled*.

Onboard Broadcom NIC
This item enables or disables the initialization of the onboard Broadcome NIC (network interface card). Setting options: *Enabled, Disabled.*

Onboard Lan Boot ROM
This item enables or disables the initialization of the onboard LAN Boot ROMs during bootup. Selecting *Disabled* will speed up the boot process. Setting options: *Disabled, Enabled.*

SuperIO Device
Press <Enter> and the following sub-menu appears:

Phoenix - Award WorkstationBIOS CMOS Setup Utility
SuperIO Device
Onboard FDC Controller [Enabled]
Onboard Serial Port 1 [3F8/IRQ4]
Onboard Serial Port 2 [2F8/IRQ3]
Onboard Parallel Port [378/IRQ7]
Parallel Port Mode [SPP]
EPP Mode Select [EPP1.7]
ECP Mode Use DMA [3]
Item Help
Menu Level ▸▸

Onboard FDC Controller
Select *Enabled* if your system has a floppy disk controller (FDD) installed on the system board and you wish to use it. If you install add-on FDC or the system has no floppy drive, select *Disabled* in this field. Setting options: *Enabled, Disabled.*

Onboard Serial Port 1/2
These items specify the base I/O port address and IRQ for the onboard Serial Port A (COM A)/Serial Port B (COM B). Selecting *Auto* allows BIOS to automatically determine the correct base I/O port address. Settings: *Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Auto*.

Onboard Parallel Port
This specifies the I/O port address and IRQ of the onboard parallel port. Settings: *378/IRQ7, 278/IRQ5, 3BC/IRQ7, Disabled*.

Parallel Port Mode
This item selects the operating mode for the parallel port: *Normal, SPP, EPP, ECP,* or *ECP+EPP*.

SPP:	Standard Parallel Port
EPP:	Enhanced Parallel Port
ECP:	Extended Capability Port
ECP + EPP:	Extended Capability Port + Enhanced Parallel Port
Normal:	Standard Parallel Port + Bi-Directional Mode.

EPP Mode Select
This item selects the EPP mode. Settings: *EPP1.9, EPP1.7*.

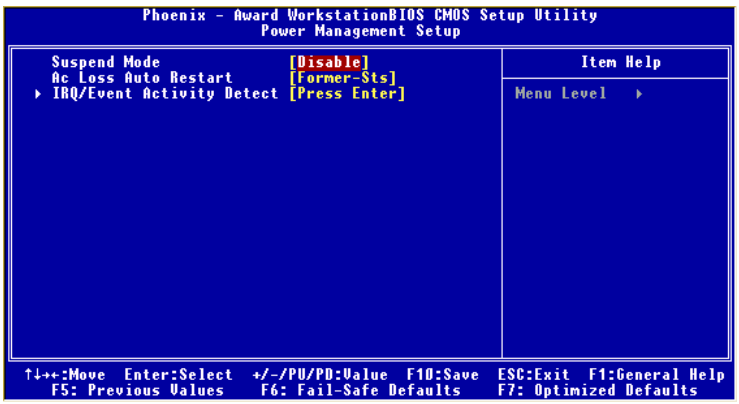
ECP Mode Use DMA
The ECP mode has to use the DMA channel, so choose the onboard parallel port with the ECP feature. After selecting it, the following message will appear: "ECP Mode Use DMA." At this time, the user can choose between DMA channel *3* or *1*.

Init Display First
This item specifies which VGA card is your primary graphics adapter. Settings: *PCI Slot, AGP*.

Power Status Led
This item sets how the system uses Power LED on the case to indicate the suspend/sleep state. Settings are:

Single	The Power LED blinks to indicate the suspend/sleep state.
Dual	The Power LED changes its color to indicate the suspend/sleep state.

Power Management Setup


Phoenix - Award WorkstationBIOS CMOS Setup Utility
Power Management Setup
Suspend Mode [Disable]
Ac Loss Auto Restart [Former-Sts]
IRQ/Event Activity Detect [Press Enter]
Item Help
Menu Level
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Suspend Mode

If system activity is not detected for the length of time specified in this field, all devices except CPU will be shut off. Settings: *Disabled, 1 Min, 2 Min, 4 Min, 6 Min, 8 Min, 10 Min, 20 Min, 30 Min, 40 Min, 1 Hour.*

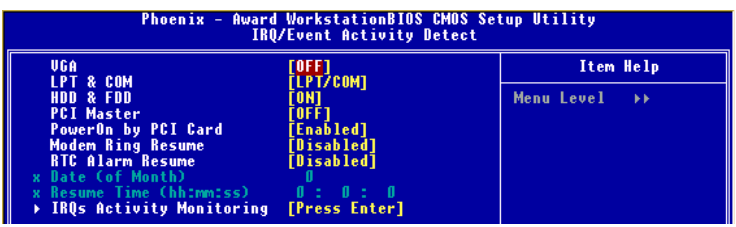
AC Loss Auto Restart

This item specifies whether your system will reboot after a power failure or interrupt occurs. Available settings are:

Off	Leaves the computer in the power off state.
On	Leaves the computer in the power on state.
Former-sts	Restores the system to the status before power failure or interrupt occurred.

IRQ/Event Activity Detect

Press <Enter> and the following sub-menu appears:


Phoenix - Award WorkstationBIOS CMOS Setup Utility
IRQ/Event Activity Detect
VGA [OFF]
LPT & COM [LPT/COM]
HDD & FDD [ON]
PCI Master [OFF]
PowerOn by PCI Card [Enabled]
Modem Ring Resume [Disabled]
RTC Alarm Resume [Disabled]
x Date (of Month) 0
x Resume Time (hh:mm:ss) 0 : 0 : 0
IRQs Activity Monitoring [Press Enter]
Item Help
Menu Level

VGA, LPT & COM, HDD & FDD, PCI Master
These fields specify whether the system will be awakened from power saving modes when activity or input signal of the specified hardware peripheral or component is detected.

PowerOn by PCI Card
When it is set to *Enabled*, the feature allows your system to be powered on by the PCI card. Setting options: *Enabled, Disabled.*

Modem Ring Resume
When it is set to *Enabled*, the feature allows your system to support COM port Modem to resume. Setting options: *Enabled, Disabled.*

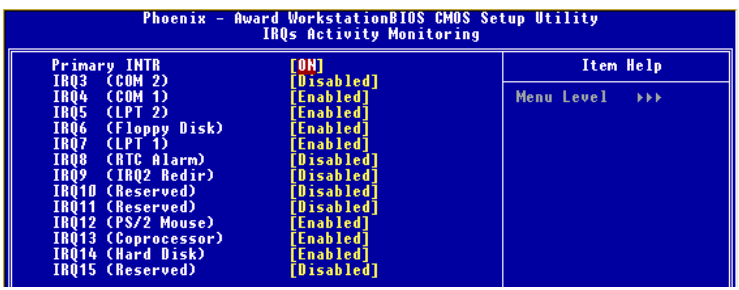
RTC Alarm Resume
When it is set to *Enabled*, your can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.

Date (of Month)
The field specifies the date for *Resume By RTC Alarm*. Settings: 0~31.

Resume Time (hh:mm:ss)
The field specifies the time for *Resume By RTC Alarm*. Format is <hour> <minute><second>.

MSI Reminds You...
If you have changed this setting, you must let the system boot up until it enters the operating system, before this function will work.

IRQs Activity Monitoring
Press <Enter> and the following sub-menu appears:



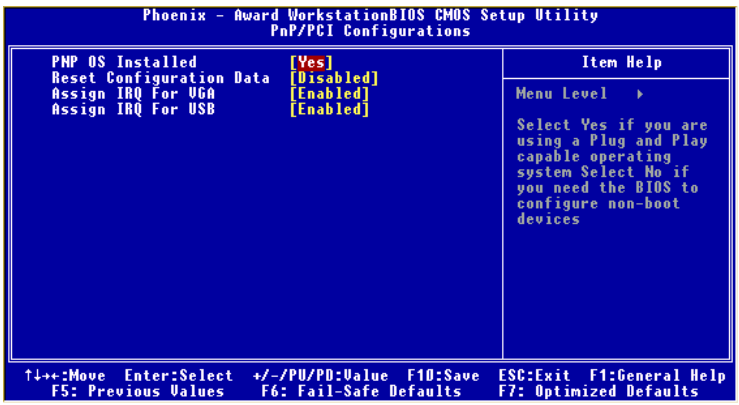
Primary INTR
Setting *ON* will cause the system to wake up from power saving modes if activity is detected from any enabled IRQ channels. Setting options: *ON, OFF*.

IRQ3~IRQ15
IRQ3~IRQ15 enable or disable the monitoring of the specified IRQ lines. If set to *Enabled*, the activity of the specified IRQ line will prevent the system from entering power saving modes or awaken it from power saving modes.

MSI Reminds You...
IRQ (Interrupt Request) lines are system resources allocated to I/O devices. When an I/O device needs to gain attention of the operating system, it signals this by causing an IRQ to occur. After receiving the signal, when the operating system is ready, the system will interrupt itself and perform the service required by the I/O device.

PNP/PCI Configurations

This section describes configuring the PCI bus system and PnP (Plug & Play) feature. PCI, or Peripheral Component Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.


Phoenix - Award WorkstationBIOS CMOS Setup Utility
PnP/PCI Configurations
PNP OS Installed [Yes]
Reset Configuration Data [Disabled]
Assign IRQ For VGA [Enabled]
Assign IRQ For USB [Enabled]
Item Help
Menu Level ▸
Select Yes if you are using a Plug and Play capable operating system Select No if you need the BIOS to configure non-boot devices
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

PNP OS Installed

When set to *Yes*, BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Windows 98. When set to *No*, BIOS will initialize all the PnP cards. So, select *Yes* if your operating system is Plug & Play aware.

Reset Configuration Data

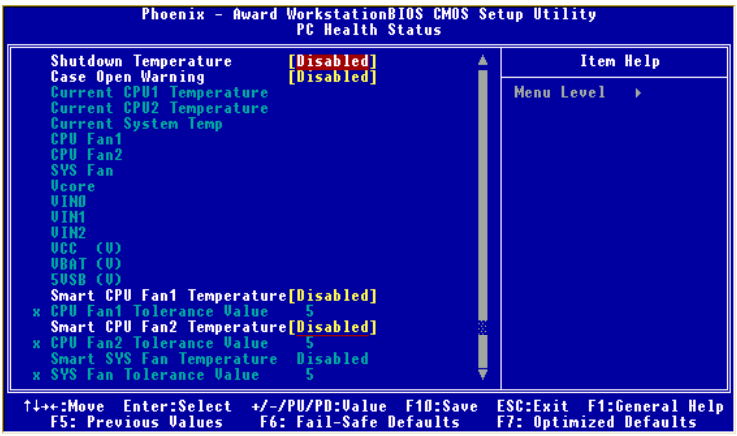
Normally, you leave this field *Disabled*. Select *Enabled* to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

Assign IRQ For VGA/USB

Set to *Enabled* allows BIOS to assign an IRQ to VGA card/USB device. Choose *Disabled* if you want to release the IRQ.

PC Health Status

This section shows the status of your CPU, fan, overall system status, etc. Monitor function is available only if there is hardware monitoring mechanism onboard.



Shutdown Temperature

If the CPU temperature reaches the limit preset in this setting, the system will shotdown automatically. Setting options: *Disabled*, *85C/185F*, *90C/194F*, *95C/203F*.

Case Open Warning

The field enables or disables the feature of recording the chassis intrusion status and issuing a warning message if the case is once opened. To clear the warning message, set the field to *Reset*. The setting of the field will automatically return to *Enabled* later. Setting options: *Enabled*, *Reset*, *Disabled*.

Current CPU1/CPU2/System Temperature, CPU Fan1/Fan2, SYS Fan, Vcore, VIN0/1/2, VCC (V), VBAT(V), 5VSB(V)

These items display the current status of all of the monitored hardware devices/ components such as CPU voltages, temperatures and all fans' speeds.

Smart CPU Fan1/CPU Fan2/SYS Fan Temperature

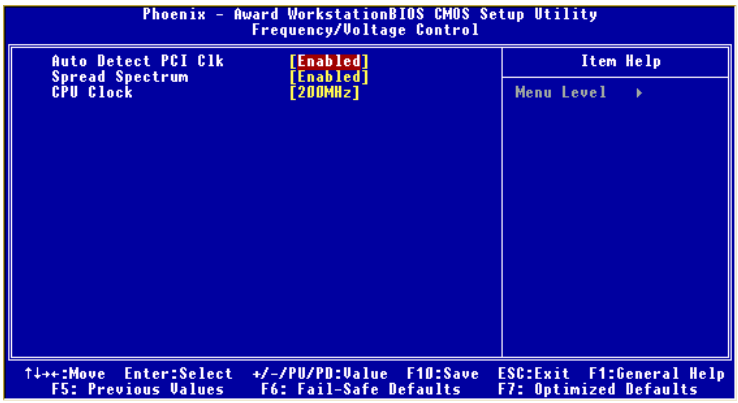
There are 3 pairs of Temperature/FAN Speed control: CPU1 Temperature with CPU Fan1, CPU2 Temperature with CPU Fan2, System Temperature with SYS Fan. W83627THF provides the Smart Fan system which can control the fan speed automatically depending on the current temperature to keep it with in a

specific range.

CPU Fan1/CPU Fan2/SYS Fan Tolerance Value
You can select a fan tolerance value here for the specific range for the “Smart CPU Fan1/CPU Fan2/SYS Fan Temperature” items. If the current temperatures of the 3 fans reach to the maximum threshold (the temperatures set in the “Smart CPU Fan1/CPU Fan2/SYS Fan Temperature” plus the tolerance values you set here), the fans will speed up for cooling down. On the contrary if the current temperatures reach to the minimum threshold (the set temperatures minus the tolerance values), the fans will slow down to keep the temperatures stable.

Frequency/Voltage Control

Use this menu to specify your settings for frequency/voltage control.


Phoenix - Award WorkstationBIOS CMOS Setup Utility
Frequency/Voltage Control
Auto Detect PCI Clk [Enabled]
Spread Spectrum [Enabled]
CPU Clock [200MHz]
Item Help
Menu Level ▸
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Auto Detect PCI Clk

This option allows you to enable/disable the feature of auto detecting the clock frequency of the installed PCI bus. The settings are: *Enabled, Disabled*.

Spread Spectrum

When the motherboard's clock generator pulses, the extreme values (spikes) of the pulses creates EMI (Electromagnetic Interference). The Spread Spectrum function reduces the EMI generated by modulating the pulses so that the spikes of the pulses are reduced to flatter curves. If you do not have any EMI problem, leave the setting at *Disabled* for optimal system stability and performance. But if you are plagued by EMI, activate the Spread Spectrum for EMI reduction. Remember to disable Spread Spectrum if you are overclocking because even a slight jitter can introduce a temporary boost in clockspeed which may just cause your overclocked processor to lock up. Options: *Disabled, Enabled*.

CPU Clock

This item specifies the clock frequency of CPU host bus (FSB), AGP (3V66) and PCI bus. It provides a method for end users to overclock the processor. Setting options: Give a DEC value by entering a number between *maximum 233 MHz* to *minimum 200 MHz.*

Load Fail-Safe/Optimized Defaults

The two options on the main menu allow users to restore all of the BIOS settings to the default Fail-Safe or Optimized values. The Optimized Defaults are the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard. The Fail-Safe Defaults are the default values set by the BIOS vendor for stable system performance.

When you select Load Fail-Safe Defaults, a message as below appears:

Pressing *Y* loads the BIOS default values for the most stable, minimal system performance.

When you select Load Optimized Defaults, a message as below appears:

Pressing *Y* loads the default factory settings for optimal system performance.

Set Supervisor/User Password

When you select this function, a message as below will appear on the screen:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will replace any previously set password from CMOS memory. You will be prompted to confirm the password. Retype the password and press <Enter>.

To clear a set password, just press <Enter> when you are prompted to enter the password. A message will show up confirming the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup without entering any password.

When a password has been set, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also have BIOS to request a password each time the system is booted. This would prevent unauthorized use of your computer. The setting to determine when the password prompt is required is the Security Option of the Advanced BIOS Feature menu. If the Security Option is set to *System*, the password is required both at boot and at entry to Setup. If set to *Setup*, password prompt only occurs when you try to enter Setup.

MSI Reminds You...

About Supervisor Password & User Password:

Supervisor password:	*Can enter and change the settings of the setup menu.*
User password:	*Can only enter but do not have the right to change the settings of the setup menu.*

Appendix: VIA VT8237 Serial ATA RAID Introduction

The Southbridge VT8237 provides a hybrid solution that combines two independent SATA ports for support of up to two Serial ATA (Serial ATA RAID) drives.

Serial ATA (SATA) is the latest generation of the ATA interface. SATA hard drives deliver blistering transfer speeds of up to 150MB/sec. Serial ATA uses long, thin cables, making it easier to connect your drive and improving the airflow inside your PC.

The key features of VT8237 SATA RAID are:

1. Support two SATA + four PATA hard disk drives.
2. Only SATA supports RAID.
3. Supports ATA 133 high performance hard disk drive.
4. Dual independent ATA channels and maximum connection of four hard disk drives allowed.
5. Supports Ultra DMA mode 6/5/4/3/2/1/0, DMA mode 2/1/0, and PIO mode 4/3/2/1/0.
6. Supports RAID 0 and RAID 1.
7. 4 KB to 64 KB striping block size support.
8. Bootable disk or disk array support.
9. Windows-based RAID configure and management software tool. (Compatible with BIOS)
10. Supports hot-swap failed disk drive in RAID 1 array.
11. ATA SMART function support.
12. Microsoft Windows 98, Me, NT4.0, 2000, XP operating systems support.
13. Event log for easy troubleshooting.

Introduction

This section gives a brief introduction on the RAID-related background knowledge and a brief introduction on VIA SATA RAID Host Controller. For users wishing to install their VIA SATA RAID driver and RAID software, proceed to **Driver and RAID Software Installation** section.

RAID Basics

RAID (Redundant Array of Independent Disks) is a method of combining two or more hard disk drives into one logical unit. The advantage of an Array is to provide better performance or data fault tolerance. Fault tolerance is achieved through data redundant operation, where if one drives fails, a mirrored copy of the data can be found on another drive. This can prevent data loss if the operating system fails or hangs. The individual disk drives in an array are called “members”. The configuration information of each member is recorded in the “reserved sector” that identifies the drive as a member. All disk members in a formed disk array are recognized as a single physical drive to the operating system.

Hard disk drives can be combined together through a few different methods. The different methods are referred to as different RAID levels. Different RAID levels represent different performance levels, security levels and implementation costs. The RAID levels which the VIA VT8237 SATA RAID Host Controller supports are RAID 0 and RAID 1. The table below briefly introduced these RAID levels.

RAID Level	No. of Drives	Capacity	Benefits
RAID 0 (Striping)	2	Number drives * 2	Highest performance without data protection
RAID 1 (Mirroring)	2	Smallest size	Data protection

RAID 0 (Striping)

RAID 0 reads and writes sectors of data interleaved between multiple drives. If any disk member fails, it affects the entire array. The disk array data capacity is equal to the number of drive members times the capacity of the smallest member. The striping block size can be set from 4KB to 64KB. RAID 0 does not support fault tolerance.

RAID 1 (Mirroring)

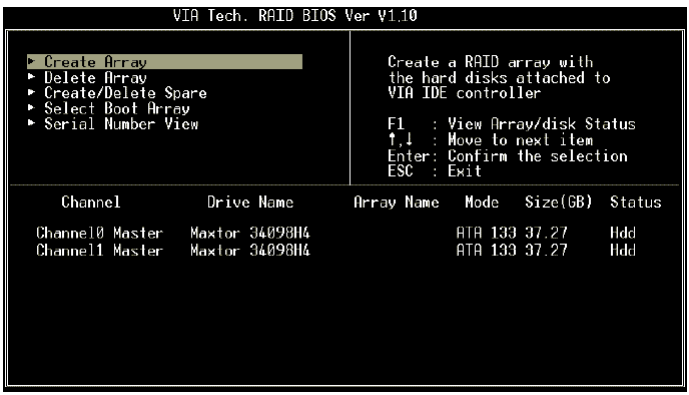
RAID 1 writes duplicate data onto a pair of drives and reads both sets of data in parallel. If one of the mirrored drives suffers a mechanical failure or does not respond, the remaining drive will continue to function. Due to redundancy, the drive capacity of the array is the capacity of the smallest drive. Under a RAID 1 setup, an extra drive called the .spare drive. can be attached. Such a drive will be activated to replace a failed drive that is part of a mirrored array. Due to the fault tolerance, if any RAID 1 drive fails, data access will not be affected as long as there are other working drives in the array.

BIOS Configuration

When the system powers on during the POST (Power-On Self Test) process, press <Tab> key to enter the BIOS configuration.

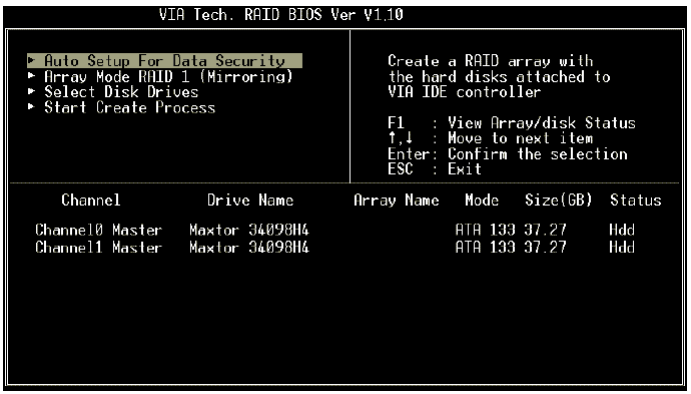
VIA Technologies, Inc. VIA VT6420 RAID BIOS Setting Utility V1.10
Copyright (C) VIA Technologies, Inc. All Right reserved.
Press < Tab > key into User Window!
Scan Devices, Please wait...
Channel 0 Master: Maxtor 34098H4
Channel 1 Master: Maxtor 34098H4

The Serial ATA RAID volume may be configured using the VIA Tech. RAID BIOS. Always use the arrow keys to navigate the main menu, use up and down arrow key to select the each item and press <Enter> to call out the list of creation steps. The main interface of BIOS configuration utility is as below:


VIA Tech. RAID BIOS Ver V1.10
Create Array
Delete Array
Create/Delete Spare
Select Boot Array
Serial Number View
Create a RAID array with the hard disks attached to VIA IDE controller
F1 : View Array/disk Status
↑↓ : Move to next item
Enter: Confirm the selection
ESC : Exit
Channel Drive Name Array Name Mode Size(GB) Status
Channel0 Master Maxtor 34098H4 ATA 133 37.27 Hdd
Channel1 Master Maxtor 34098H4 ATA 133 37.27 Hdd

Create Disk Array

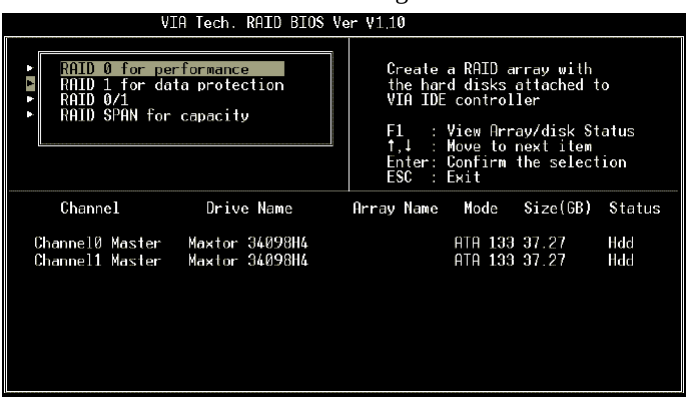
Use the up and down arrow keys to select the **Create Array** command and press <Enter>.


VIA Tech. RAID BIOS Ver V1.10
Auto Setup For Data Security
Array Mode RAID 1 (Mirroring)
Select Disk Drives
Start Create Process
Create a RAID array with the hard disks attached to VIA IDE controller
F1 : View Array/disk Status
↑,↓ : Move to next item
Enter: Confirm the selection
ESC : Exit
Channel Drive Name Array Name Mode Size(GB) Status
Channel0 Master Maxtor 34098H4 ATA 133 37.27 Hdd
Channel1 Master Maxtor 34098H4 ATA 133 37.27 Hdd

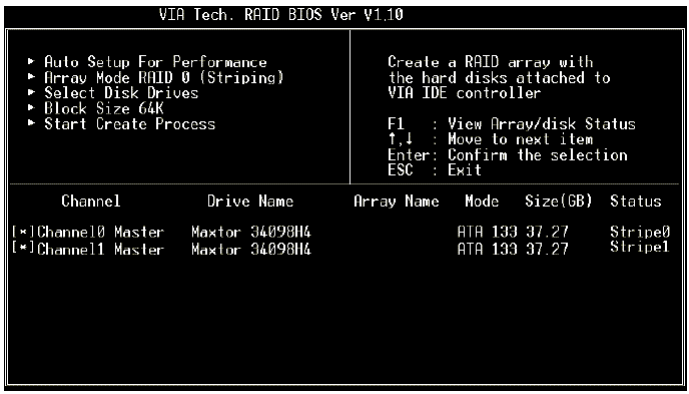
MSI Reminds You...

The "Channel", "Drive Name", "Mode" and "Size (GB)" in the following example might be different from your system.

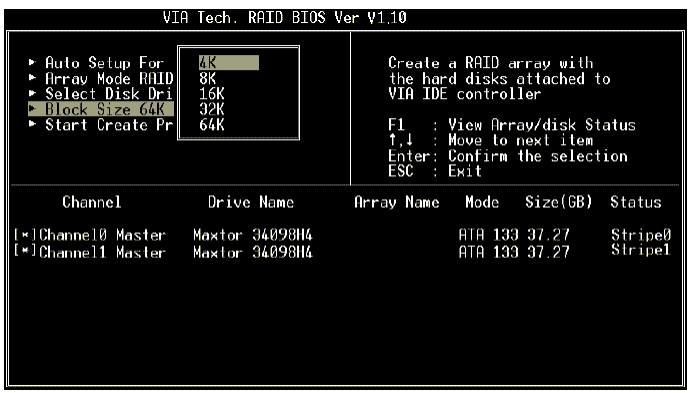
Select **Array Mode** and press <Enter>, a list of array modes will appear. Highlight the target array mode that you want to create, and press <Enter> to confirm the selection. If RAID 1 or RAID 0/1 is selected, an option list will popup and enable the users to select **Create only** or **Create and duplicate**. **Create only** will allow BIOS to only create an array. The data on the mirroring drive may be different from the source drive. **Create and duplicate** lets BIOS copy the data from the source to the mirroring drive.


VIA Tech. RAID BIOS Ver V1.10
RAID 0 for performance
RAID 1 for data protection
RAID 0/1
RAID SPAN for capacity
Create a RAID array with the hard disks attached to VIA IDE controller
F1 : View Array/disk Status
↑,↓ : Move to next item
Enter: Confirm the selection
ESC : Exit
Channel Drive Name Array Name Mode Size(GB) Status
Channel0 Master Maxtor 34098H4 ATA 133 37.27 Hdd
Channel1 Master Maxtor 34098H4 ATA 133 37.27 Hdd

After array mode is selected, there are two methods to create a disk array. One method is "**Auto Setup"** and the other one is "**Select Disk Drives"**. **Auto Setup** allows BIOS to select the disk drives and create arrays automatically, but it does not duplicate the mirroring drives even if the user selected **Create and duplicate** for RAID 1. It is recommended all disk drives are new ones when wanting to create an array. **Select Disk Drives** lets the user select the array drives by their requirements. When using **Select Disk Drives**, the channel column will be activated. Highlight the target drives that you want to use and press <Enter> to select them. After all drives have been selected, press <Esc> to go back to the creation steps menu.


VIA Tech. RAID BIOS Ver V1.10
▸ Auto Setup For Performance
▸ Array Mode RAID 0 (Striping)
▸ Select Disk Drives
▸ Block Size 64K
▸ Start Create Process
Create a RAID array with
the hard disks attached to
VIA IDE controller
F1 : View Array/disk Status
↑,↓ : Move to next item
Enter: Confirm the selection
ESC : Exit
Channel Drive Name Array Name Mode Size(GB) Status
[*]Channel0 Master Maxtor 34098H4 ATA 133 37.27 Stripe0
[*]Channel1 Master Maxtor 34098H4 ATA 133 37.27 Stripe1

If user selects a RAID 0 array in step 2, the block size of the array can also be selected. Use the arrow key to highlight **Block Size** and press <Enter>, then select a block size from the popup menu. The block size can be 4KB to 64KB.


VIA Tech. RAID BIOS Ver V1.10
▸ Auto Setup For
▸ Array Mode RAID
▸ Select Disk Dri
▸ Block Size 64K
▸ Start Create Pr
4K
8K
16K
32K
64K
Create a RAID array with
the hard disks attached to
VIA IDE controller
F1 : View Array/disk Status
↑,↓ : Move to next item
Enter: Confirm the selection
ESC : Exit
Channel Drive Name Array Name Mode Size(GB) Status
[*]Channel0 Master Maxtor 34098H4 ATA 133 37.27 Stripe0
[*]Channel1 Master Maxtor 34098H4 ATA 133 37.27 Stripe1

MSI Reminds You...
Even though 64KB is the recommended setting for most users, you should choose the block size value which is best suited to your specific RAID usage model.

***4KB**: For specialized usage models requiring 4KB blocks*
***8KB**: For specialized usage models requiring 8KB blocks*
***16KB**: Best for sequential transfers*
***32KB**: Good for sequential transfers*
***64KB**: Optimal setting*

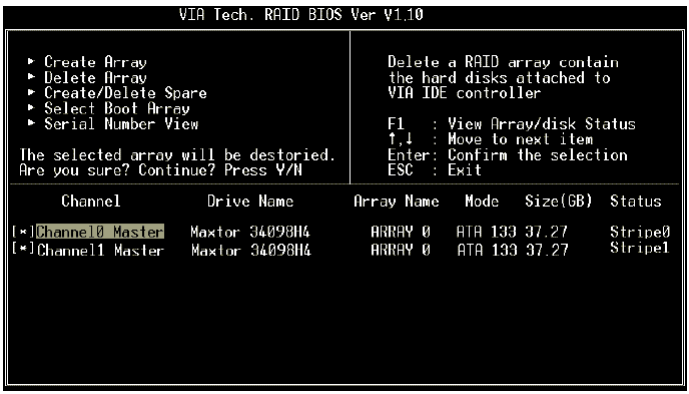
Use the arrow key to highlight **Start Create Process** and press <Enter>. A warning message will appear, Press **Y** to finish the creation, or press **N** to cancel the creation.

Important note: All existing content in the hard drive will be destroyed after array creation.

Delete Disk Array

A RAID can be deleted after it has been created. To delete a RAID, use the following steps:

1. Select **Delete Array** in the main menu and press <Enter>. The channel column will be activated.
2. Select the member of an array that is to be deleted and press <Enter>. A warning message will show up, press Y to delete or press N to cancel.

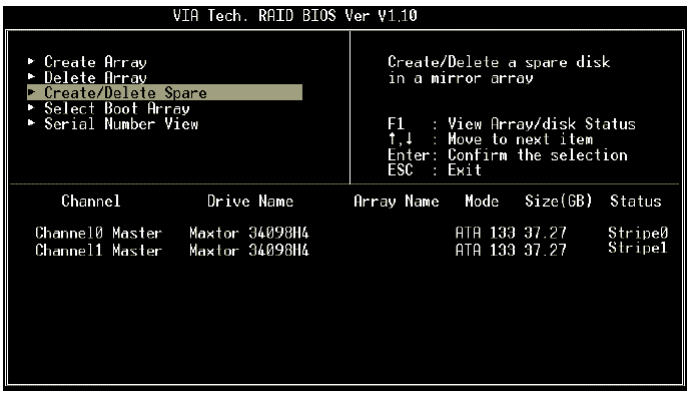


Deleting a disk array will destroy all the data on the disk array except RAID 1 arrays. When a RAID is deleted, the data on these two hard disk drives will be reserved and become two normal disk drives.

Create and Delete Spare Hard Drive

If a RAID 1 array is created and there are drives that do not belong to other arrays, the one that has a capacity which is equal to or greater than the array capacity can be selected as a spare drive for the RAID 1 array. Select **Create/Delete Spare** and press <Enter>, the channel column will then be activated. Select the drive that you want to use as a spare drive and press <Enter>, the selected drive will be marked as **Spare**. The spare drive cannot be accessed in an OS.

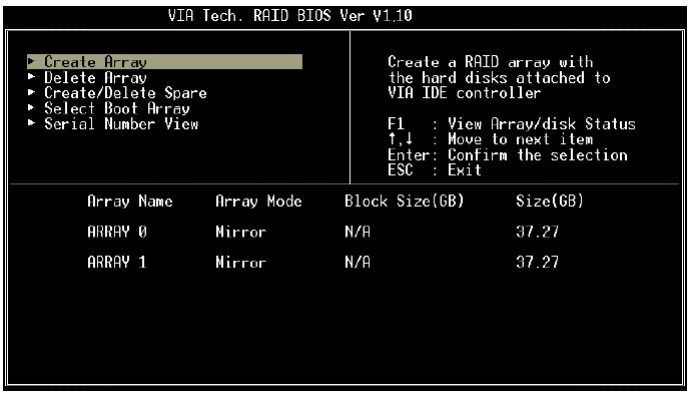
To delete a spare drive, highlight **Create/Delete Spare** and press <Enter>. The spare drive will be highlighted, press <Enter> to delete the spare drive.



View Serial Number of Hard Drive

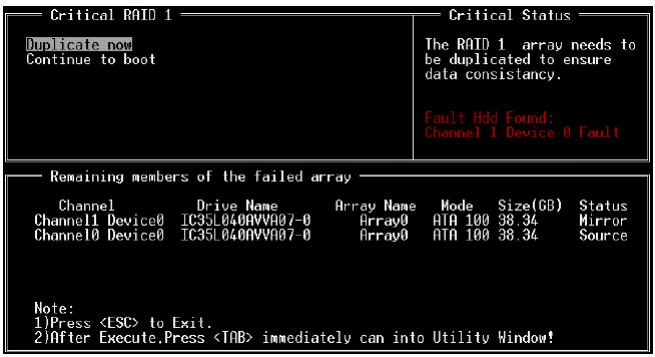
Highlight **Serial Number View** and press <Enter>. Use arrow key to select a drive, the selected drive's serial number can be viewed in the last column. The serial number is assigned by the disk drive manufacturer.

Press the **F1** key to show the array status on the lower screen. If there are no disk arrays then nothing will be displayed on the screen.



Duplicate Critical RAID 1 Array

When booting up the system, BIOS will detect if the RAID 1 array has any inconsistencies between user data and backup data. If BIOS detects any inconsistencies, the status of the disk array will be marked as critical, and BIOS will prompt the user to duplicate the RAID 1 in order to ensure the backup data consistency with the user data.


Critical RAID 1
Duplicate now
Continue to boot
Critical Status
The RAID 1 array needs to be duplicated to ensure data consistancy.
Fault Hdd Found:
Channel 1 Device 0 Fault
Remaining members of the failed array
Channel Drive Name Array Name Mode Size(GB) Status
Channel1 Device0 IC35L040AYVA07-0 Array0 ATA 100 38.34 Mirror
Channel0 Device0 IC35L040AYVA07-0 Array0 ATA 100 38.34 Source
Note:
1)Press <ESC> to Exit.
2)After Execute,Press <TAB> immediately can into Utility Window!

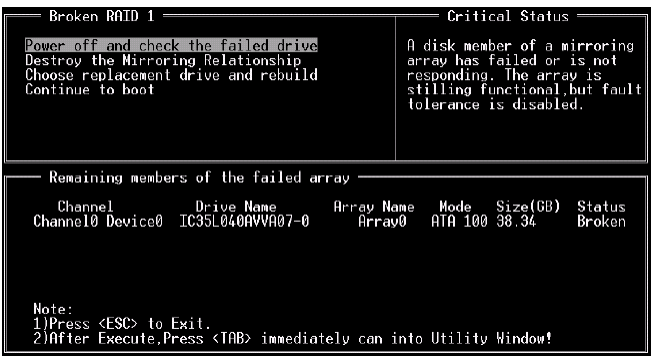
If user selects **Continue to boot,** it will enable duplicating the array after booting into OS.

Rebuild Broken RAID 1 Array

When booting up the system, BIOS will detect if any member disk drives of RAID has failed or is absent. If BIOS detects any disk drive failures or missing disk drives, the status of the array will be marked as broken.

If BIOS detects a broken RAID 1 array but there is a spare hard drive available for rebuilding the broken array, the spare hard drive will automatically become the mirroring drive. BIOS will show a main interface just like a duplicated RAID 1. Selecting **Continue to boot** enables the user to duplicate the array after booting into operating system.

If BIOS detects a broken RAID 1 array but there is no spare hard drive available for rebuilding the array, BIOS will provide several operations to solve such problem.



1. Power off and Check the Failed Drive:

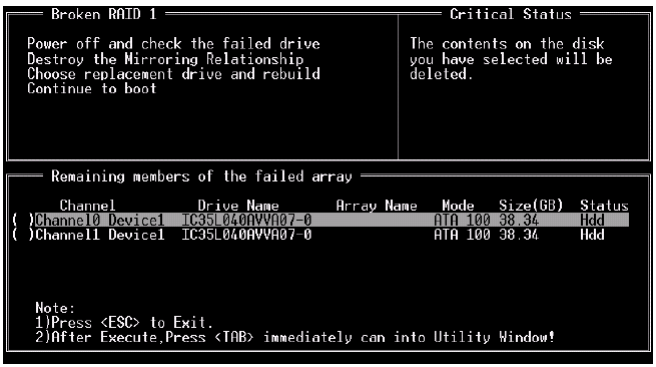
This item turns off the computer and replaces the failed hard drive with a good one. If your computer does not support APM, you must turn off your computer manually. After replacing the hard drive, boot into BIOS and select **Choose replacement drive and rebuild** to rebuild the broken array.

2. Destroy the Mirroring Relationship:

This item cancels the data mirroring relationship of the broken array. For broken RAID 1 arrays, the data on the surviving disk will remain after the destroy operation. However, **Destroy the Mirroring Relationship** is not recommend because the data on the remaining disk will be lost when the hard drive is used to create another RAID 1 array.

3. Choose Replacement Drive and Rebuild:

This item enables users to select an already-connected hard drive to rebuild the broken array. After choosing a hard drive, the channel column will be activated.


Broken RAID 1
Critical Status
Power off and check the failed drive
Destroy the Mirroring Relationship
Choose replacement drive and rebuild
Continue to boot
The contents on the disk you have selected will be deleted.
Remaining members of the failed array
Channel Drive Name Array Name Mode Size(GB) Status
( )Channel0 Device1 IC35L040AVVA07-0 ATA 100 38.34 Hdd
( )Channel1 Device1 IC35L040AVVA07-0 ATA 100 38.34 Hdd
Note:
1)Press <ESC> to Exit.
2)After Execute,Press <TAB> immediately can into Utility Window!

Highlight the target hard drive and press <Enter>, a warning message will appear. Press **Y** to use that hard drive to rebuild, or press **N** to cancel. Please note selecting option **Y** will destroy all the data on the selected hard drive.

4. Continue to boot:

This item enables BIOS to skip the problem and continue booting into OS.

Installing RAID Software & Drivers

Install Driver in Windows OS

➤ **New Windows OS (2000/XP/NT4) Installation**

The following details the installation of the drivers while installing Windows XP.

1. Start the installation:

Boot from the CD-ROM. Press **F6** when the message "Press F6 if you need to install third party SCSI or RAID driver" appears.

2. When the Windows Setup window is generated, press **S** to specify an Additional Device(s).

3. Insert the driver diskette ***VIA VT6420/VT8237 Disk Driver*** into drive A: and press <Enter>.

4. Depending on your operation system, choose ***VIA Serial ATA RAID Controller(Windows XP)***, ***VIA Serial ATA RAID Controller(Windows 2000)*** or ***VIA Serial ATA RAID Controller(Windows NT4)*** from the list that appears on Windows XP Setup screen, press the <Enter> key.

5. Press <Enter> to continue with installation or if you need to specify any additional devices to be installed, do so at this time. Once all devices are specified, press <Enter> to continue with installation.

6. From the Windows XP Setup screen, press the <Enter> key. Setup will now load all device files and then continue the Windows XP installation

➤ **Existing Windows XP Driver Installation**

1. Insert the MSI CD into the CD-ROM drive.
2. The CD will auto-run and the setup screen will appear.
3. Under the Driver tab, click on ***VIA SATA RAID Utility***.
4. The drivers will be automatically installed.

➤ **Confirming Windows XP Driver Installation**

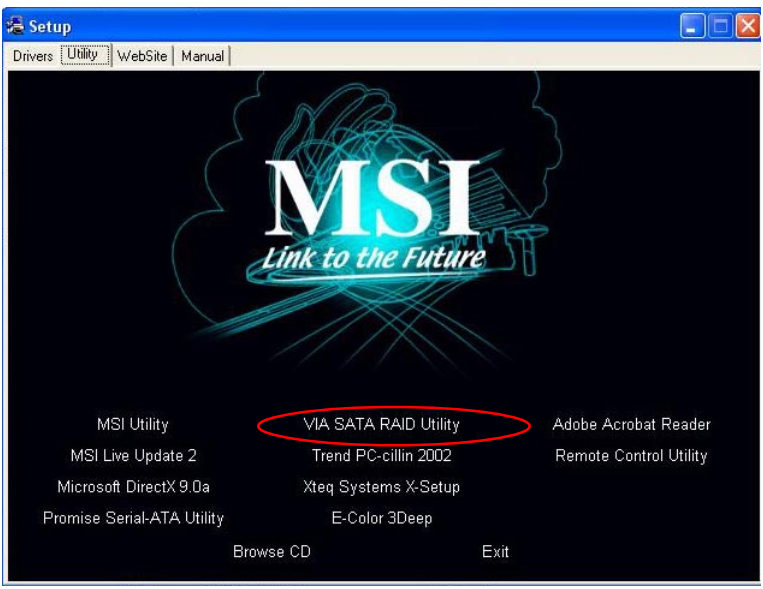
1. From Windows XP, open the **Control Panel** from **My Computer** followed by the System icon.
2. Choose the **Hardware** tab, then click the **Device Manager** tab.
3. Click the "+" in front of the **SCSI and RAID Controllers** hardware type. The driver ***VIA IDE RAID Host Controller*** should appear.

Installation of VIA SATA RAID Utility

The VIA SATA RAID Utility is the software package that enables high-performance RAID 0 arrays in the Windows* XP operating system. This version of VIA SATA RAID Utility contains the following key features:

- ➤ Serial ATA RAID driver for Windows XP
- ➤ VIA SATA RAID utility
- ➤ RAID0 and RAID1 functions

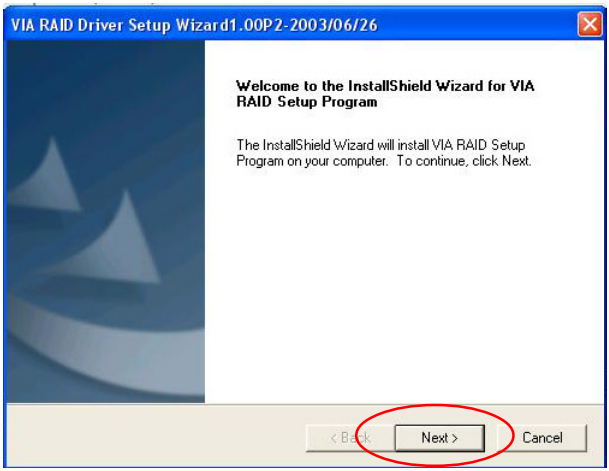
Insert the MSI CD and click on the **VIA SATA RAID Utility** to install the software.



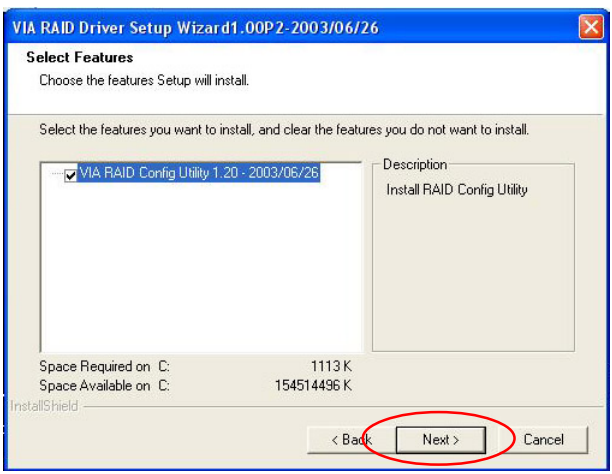
MSI Reminds You...

Due to the different specification of the mainboard you purchased, the screen of MSI CD shown here may be slightly different from the latest software utility and shall be held for reference only.

The **InstallShield Wizard** will begin automatically for installation. Click on the **Next** button to proceed the installation in the welcoming window.

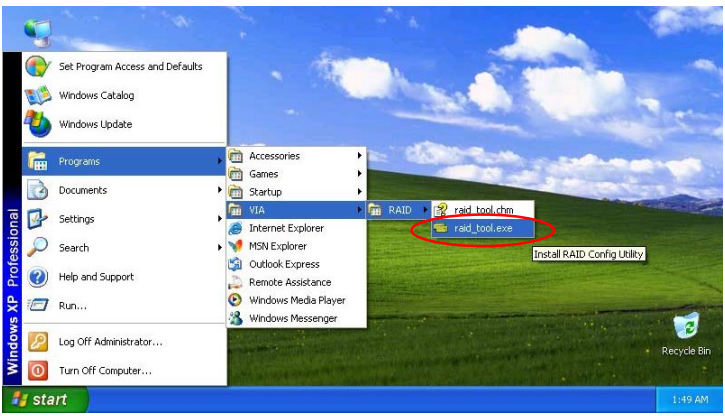

VIA RAID Driver Setup Wizard1.00P2-2003/06/26
Welcome to the InstallShield Wizard for VIA RAID Setup Program
The InstallShield Wizard will install VIA RAID Setup Program on your computer. To continue, click Next.
< Back
Next >
Cancel

Put a check mark in the check box to install the feature you want. Then click **Next** button to proceed the installation.


VIA RAID Driver Setup Wizard1.00P2-2003/06/26
Select Features
Choose the features Setup will install.
Select the features you want to install, and clear the features you do not want to install.
VIA RAID Config Utility 1.20 - 2003/06/26
Description
Install RAID Config Utility
Space Required on C: 1113 K
Space Available on C: 154514496 K
InstallShield
< Back
Next >
Cancel

Using VIA RAID Tool

Once the installation is complete, go to **Start** ---> **Programs** --->**VIA** --->**raid_tool.exe** to enable **VIA RAID Tool**.



After the software is finished installation, it will automatically started every time Windows is initiated. You may double-click on the icon shown in the system tray of the tool bar to launch the **VIA RAID Tool** utility.

The main interface is divided into two windows and the toolbar above contain the main functions. Click on these toolbar buttons to execute their specific functions. The left windowpane displays the controller and disk drives and the right windowpane displays the details of the controller or disk drives. In KT6 Delta, the available features are as following:

View by Controller

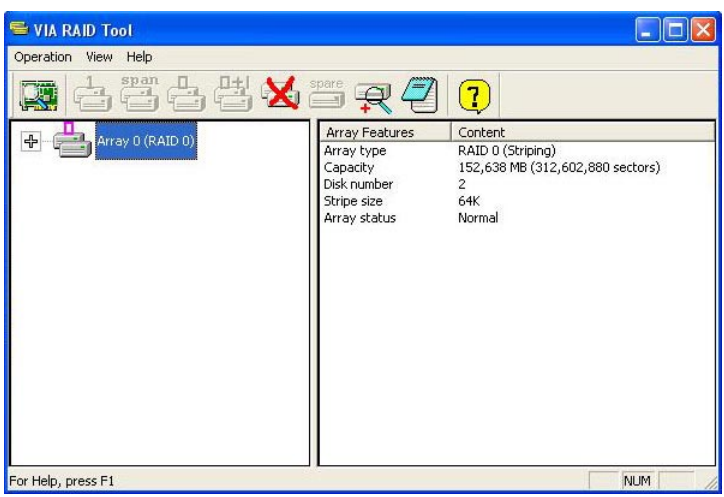
View by Devices

View Event log

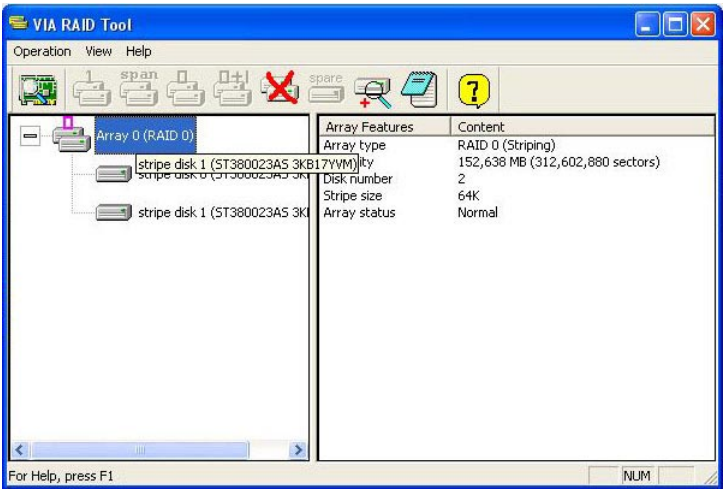
Help Topics

It means that VT8237 SATA RAID in KT6 Delta only has the feature of monitoring the statuses of RAID 0 and RAID 1.

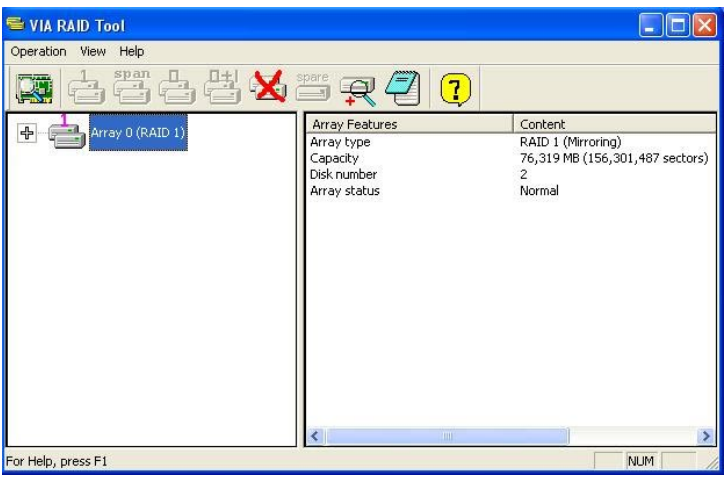
Click on o r button to determine the viewing type of left window pane. There are two viewing types: By controllers and by device. Click on the object in the left window pane to display the status of the object in the right windowpane. The following screen shows the status of Array 0---RAID 0.



Click on the plus (+) symbol next to Array 0---RAID 0 to see the details of each disk.



You may also use the same o r button to view the statuses of Array 0---RAID 1.



Click on the plus (+) symbol next to Array 0---RAID 1 to see the details of each disk.